

Colonial Waterbird Nesting Summary for San Francisco Bay, 2009



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INTRODUCTION AND METHODS

San Francisco Bay Bird Observatory (SFBBO) staff biologists and volunteers monitored active waterbird nesting sites in the San Francisco Bay during the 2009 nesting season. For this report, we include data from the South San Francisco Bay, and several colonies in the Central and North San Francisco Bay and inland locations in Contra Costa County. For more information on herons and egrets in the North San Francisco Bay, see Kelly et al. (2006) or the Audubon Canyon Ranch website at www.egret.org.

We focused principally on colonies of California Gull (*Larus californicus*), Forster's Tern (*Sterna forsteri*), Caspian Tern (*Hydroprogne caspia*), California Least Tern (*S. antillarum browni*), Great Blue Heron (*Ardea herodias*), Great Egret (*A. alba*), Snowy Egret (*Egretta thula*), and Double-crested Cormorant (*Phalacrocorax auritus*). Additionally, we counted American Avocets (*Recurvirostra americana*), Black-necked Stilts (*Himantopus mexicanus*), Black Skimmers (*Rynchops niger*) and Black-crowned Night Herons (*Nycticorax nycticorax*) when nesting with other species of interest. SFBBO monitored Western Snowy Plover (*Charadrius alexandrinus nivosus*) nests (see Robinson-Nilsen et al. 2009 for methods), and here we include the total number of known nests in each salt pond for this species.

SFBBO biologists and volunteers monitored colonies using binoculars and scopes during set three day periods over the course of the breeding season. We counted all adults, nests, and chicks at the colony site. We monitored all heron species seven times between 7 March and 13 July 2009, cormorants eight times between March 7 and August 10 2009, and gulls and terns six times between 2 May and 10 August 2009. SFBBO also performed one walk-through of each California Gull colony to count all existing nests, eggs and chicks. Here, we report the numbers of nests in all colonies monitored by SFBBO. Additionally, we include information on colonies provided by the U.S. Geological Survey (USGS; J. Ackerman), Oregon State University (OSU; D. Roby), and East Bay Regional Park District (EBRPD; D. Riensche). USGS, OSU and EBRPD data are based on walkthrough data and the numbers reporter are the total number of nests counted throughout the season, rather than the peak number of nests observed. The walkthrough data includes all Least Tern nest data, and Eden Landing Ecological Reserve Caspian Tern colony data. The 2008 Forster's Tern data for certain colonies is based on USGS nest monitoring however, in 2009, we used SFBBO volunteer data for all Forster's Tern colonies.

SFBBO has been monitoring nesting colonial waterbirds in the San Francisco Bay since 1982. This report summarizes the 2009 colonial waterbird breeding results.

RESULTS AND DISSCUSION

Anhingidae: Cormorants

Double-crested Cormorants.--- Double-crested Cormorants nesting in the South Bay have declined by almost 50% since 2005 (Table 1). In 2009, all colonies declined from their 2008 numbers, and the total number of nests declined by 43% compared to the 2008 breeding



season. This decline in the South Bay is consistent with declines elsewhere in the Bay, including the colonies on the San Francisco-Oakland Bay Bridge and the Richmond-San Rafael Bridge (M. Brooks, PRBO Conservation Science, per. comm.). The largest Double-crested Cormorant colonies were Steinberger Slough in Redwood City (134 nests) and Lake Merritt in Oakland (68 nests; Table 1). From 2008, the colony in southern Lake Merced in San Francisco declined 70%; the colony in northern Lake Merced declined 30%, and the colony at Lake Merced Mesa declined 47%. The Double-crested Cormorant colonies at ponds A2W and A3W in Mountain View and Sunnyvale were greatly disturbed by construction and work done on the towers, including installing a plastic owl intended to reduce birds nesting on the towers. Most nests were abandoned at A3W, and A2W declined from 14 nests to 5 active nests by mid June.

Ardeidae: Herons and Egrets

Great Blue Herons.--- The Great Blue Heron population in the South Bay remained stable from 2008 to 2009 and has increased slightly from 2005 (Table 1). The largest colony in 2009 was in Portola Valley, with 22 active nests. The new colony that formed last year at Almaden Lake in San Jose and hosted 6 nests, was not active this year. The Great Blue Heron colonies at Eden Landing Ecological Reserve in Hayward continue to decline as the duck blinds they nest on deteriorate. None of the nests on duck blinds in pond E9 were successful this year and the "heron house" on pond E6B hosted 6 nests.

Great Egrets.--- In 2009, the number of Great Egrets nests SFBBO monitored increased slightly. This increase is in part due to the fact that this year we obtained the Bay Farm Island in Alameda colony data, which we were unable to acquire in 2008. Since 2005, the number of Great Egrets nesting within the study area has remained fairly stable, ranging from 115 to 139 nests (Table 1). The largest Great Egret colony was at Shorebird Way in Mountain View, and hosted 48 nests.

Snowy Egrets.--- Snowy Egrets have declined over the past five years from 272 nests in 2005 to 87 nests in 2009 (Table 1). One of the larger colonies, Hayward Regional Shoreline Park in Hayward, declined from 46 nests in 2008 to 13 nests in 2009 (72% decrease). The largest colony this year was at Steinberger Slough in Redwood City, which had a slight increase from 43 nests in 2008 to 46 nests in 2009. However this colony was largely unsuccessful and all but five nests were abandoned or depredated by late May. All other colonies experienced a slight decrease in numbers.

Laridae: Terns

Forster's Terns.--- Our count of nesting Forster's Terns decreased slightly in 2009 compared to the 2008 breeding season (Table 2). In 2009, we based the number of nests on the peak number of nests observed by SFBBO volunteers, rather than total number of nests monitored by the USGS, which may account for the small decline in numbers. The number of Forster's Terns nests in the San Francisco Bay has varied since 2005 and has ranged from 771 in 2005 to 1214 nests in 2006 (Table 2). The largest colony in 2009 was on salt pond B2 in



Mountain View which hosted 181 nests. The most dramatic decline was at the B1 colony in Mountain View, which hosted 250 nests last year, but only four nests this year. Some of these birds may have moved to the B2 colony, which increased from 104 nests in 2008 to 181 in 2009. The colony on A16 decreased from 101 nests in 2008 to 87 nests in 2009. The colony on A16 experienced high amounts of depredation in 2009, which caused the Forster's Terns to abandon two of the four nesting islands.

Caspian Terns.--- Caspian Terns nesting in the South Bay have increased since 2005 (Table 2). The colony at Eden Landing Ecological Reserve in Hayward pond E10 re-established in 2008 and this year hosted 75 breeding pairs, up from 48 pairs in 2008 (Dan Roby, Oregon State University, per. comm.; Table 2). The colony on the Moffett pond B2 in Mountain View increased to 64 pairs this year, an increase from 27 in 2008 and 12 pairs in 2007 (Table 2).

Least Terns.--- California Least Terns are a federally endangered species. Their nesting in the South Bay increased from 64 nests in 2008 to 81 total nests in 2009 (Table 2). The largest colony in the South Bay was at Hayward Regional Shoreline Park in Hayward, which has increased dramatically since 2005 when there were 8 nests Table 2). In 2004, EBRPD built the nesting island at Hayward Regional Shoreline Park specifically for nesting waterbirds and employed decoys and call playback to attract California Least Terns to the site (D. Riensche, per. comm.). Nest success was low in 2005 and 2006 due to depredation, but in recent years, nest success has improved due to implementation of a predator management program. In 2009, the colony fledged over 63 chicks (D. Riensche per. comm.). The colony on pond E8A in Eden Landing Ecological Reserve in Hayward (established with six nests in 2007) had only one nest this year (Table 2). The nest hatched, and within hours the chicks were depredated by a Northern Harrier, which was observed on a nest camera (Robinson-Nilsen et al. 2009).

Laridae: Gulls

California Gulls.--- The number of California Gulls breeding in the South San Francisco Bay decreased this year for the first time since 2004. However, it is important to note that gulls were surveyed primarily by aircraft in 2004, not by walkthroughs, which may have caused the decrease in that year. California Gull nests rapidly increased from 2005 to 2008 and then decreased in 2009 (Table 2). This decrease in California Gulls may be due to a change in available food resources. In 2008, Newby Island Landfill in Milpitas, started a gull abatement program which has significantly reduced the number of gulls using the landfills (Robinson et al. 2009), and the decrease of gulls in 2009 may be linked to the success of this program.

In 2009, all of the South Bay colonies decreased in size with the exception of the Mowry M1/M2 colony in Fremont, which increased by 300 nests. The largest colony of California Gulls was located on pond A6 in the Alviso salt pond complex, and scheduled to be restored to tidal action in 2011 as part of the South Bay Salt Pond Restoration Project (see <u>www.southbayrestoration.org</u> for more information), possibly displacing thousands of nesting gulls.



Charadridae: Plovers

Western Snowy Plovers.--- Western Snowy Plovers are listed as a threatened species by the U.S. Fish and Wildlife Service. SFBBO monitored 163 Snowy Plover nests on 23 former salt ponds in the South Bay (Table 3). In addition to monitoring ponds in the South Bay, in 2009 we monitored two salt ponds at the Napa-Sonoma Marsh Wildlife Area, owned and operated by California Department of Fish and Game. For more information on Snowy Plovers in the San Francisco Bay, see Robinson-Nilsen et al. (2009).

RECOMMENDATIONS:

- Regulatory agencies, such as U.S. Fish and Wildlife Service and California Department of Fish and Game, should work with private land owners to protect colonies on privately owned land. Kelly et al. (2006) suggest that the conservation of heron and egret colonies should focus on the protection of colony sites with more than 100 nests, however, herons and egrets in the South Bay are much more likely to be found in smaller colonies of 5 – 50 nests. These smaller colonies may be more sensitive to disturbance and more likely to be abandoned than larger sites (Kelly et al. 2006).
- 2. The U.S. Army Corps of Engineers plans to relocate 2500 pairs of Caspian Terns to the San Francisco Bay from the Columbia River in Oregon as a method to protect endangered Columbia River salmonids (USFWS 2005). To reduce possible nest encroachment or predation upon nests or chicks of endangered and threatened species, we recommend careful placement of the Caspian Tern nesting islands so they are not in close proximity to California Least Tern and Western Snowy Plover nesting habitat.
- 3. The South Bay Salt Pond Restoration Project will displace California Gulls from the largest colony at pond A6 when it is restored to tidal action in 2011. Studies should be conducted to investigate the impact that California Gulls will have on nesting waterbirds in the San Francisco Bay.
- 4. Displaced California Gulls from the A6 colony also have the potential to outcompete other waterbirds for nesting habitat. California Gulls initiate nests before many other nesting waterbirds, and may exclude them from historical nesting habitat (Strong et al. 2004). Therefore, measures should be taken to deter displaced gulls from the A6 colony from nesting at current waterbird colony sites.
- 5. California Gulls are opportunist feeders and are known to depredate American Avocet and Black-necked Stilt nests and chicks (Ackerman et al 2006) as well as the federally threatened Western Snowy Plover nests and chicks (Robinson-Nilsen et al. 2009). Further studies are needed to investigate depredation levels on the nesting waterbirds caused by the displaced gulls will have of the San Francisco Bay.
- 6. The number of California Gulls using Newby Island Landfill has decreased significantly since the landfill began an abatement program (Robinson et al 2009). The change in available food resources due to the abatement may have contributed to the decrease in nesting gulls in the South Bay. Newby Island Landfill should continue their gull abatement program as one measure to reduce the number of nesting California Gulls in the San Francisco Bay.



7. Continued monitoring of the South Bay waterbird species over the next few years will be crucial as the South Bay Salt Pond Restoration Project continues its Phase One actions, including construction near or at waterbird colony sites and conversion of habitats currently supporting breeding waterbirds to tidal marsh. Land managers should plan to provide alternative habitat for nesting birds during construction in nesting ponds, and study where the displaced birds nest.

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Table 1. Numbers of nests within heron, egret, and cormorant colonies in the South and Central San Francisco Bay and Contra Costa County, CA, 2009. Counts are based on peak numbers of active nests observed by SFBBO staff and volunteers.

Site Location	Land owner/ operator	Pond # or tower location	Double- crested Cormorant	Great Blue Heron	Great Egret	Snowy Egret	Black- crowned Night Heron	Method
Eden Landing	CDFG	E8A, E9		6				SFBBO
Alviso	DESFBNWR	A9/A10	0					SFBBO
Bair Island	DESFBNWR				3			SFBBO
Moffett	DESFBNWR	Towers by A2W	14					volunteer
Moffett	DESFBNWR	Towers by A3W	17					volunteer
Almaden Lake	other	n/a		0	11	4		volunteer
Bay Farm Island - Alameda	other	n/a			12	13		volunteer
Calaveras Reservoir	other	n/a		0				volunteer
Coyote Parkway Lakes	other	n/a		2				volunteer
Crocker Lake	other	n/a		0				volunteer
Don Castro	other	n/a		5				volunteer
Grant Lake	other	n/a		0				volunteer
Greco Island				6				
Hayward Shoreline	other	n/a				13	9	volunteer
Lake Chabot	other	n/a		6				volunteer
Lake Cunningham	other	n/a					17	volunteer
Lake Del Valle Park	other	n/a		0				volunteer
Lake Elizabeth	other	n/a					1 ^A	volunteer
Lake Merced - MESA	other	n/a	15	5				volunteer
Lake Merced - NORTH	other	n/a	41	5				volunteer
Lake Merced - SOUTH	other	n/a	43	0				volunteer
Lake Merritt	other	n/a	68					volunteer
Lakeshore Park, Newark	other	n/a	1			3		volunteer
Lexington Resevoir	other	n/a		1				volunteer
Morgan Hill, Llagas Creek	other	n/a		7	7			volunteer
Ovation court	other	n/a		19				volunteer
Oyster Cove Pier ^B	other	n/a						volunteer
Palo Alto Baylands	other	n/a				1	12	volunteer



Site Location	Land owner/ operator	Pond # or tower location	Double- crested Cormorant	Great Blue Heron	Great Egret	Snowy Egret	Black- crowned Night Heron	Method
Portola Valley	other	n/a		22				volunteer
Redwood Shores/Steinberger Slough	other	n/a	134	3	3	46	40	volunteer
Ruus Park	other	n/a			37	5		volunteer
Shadow Cliffs	other	n/a	14	13	8			volunteer
Shorebird Way	other	n/a			48	1		volunteer
Stow Lake	other	n/a		4				volunteer
Vasona County Park	other	n/a		7				volunteer
Vasona Reservoir	other	n/a				1		volunteer
Veterans Park, Livermore	other	n/a		5				volunteer
2009 TOTALS			347	116	130	87	79	
2008 TOTALS			608	117	115	106	74	
2007 TOTALS			701	127	139	138	133	
2006 TOTALS			769	106	133	168	112	
2005 TOTALS			662	102	123	272	59	

^AVisibility very limited ^BAbandoned



Table 2. Number of nests within shorebird, tern and gull colonies in the South and Central San Francisco Bay, CA, 2009. Counts are based on peak numbers of active nests (unless otherwise noted) observed by volunteers during the breeding season from levees or areas adjacent to colonies, calculated from a single walkthrough of the colony, or provided by an outside agency.

Site location	Land owner/ operator	Pond / tower	American Avocet	Black- Necked Stilt	California Gull	Caspian Tern	Forster's Tern	Least Tern	Black Skimmer	Method
Alviso	DESFBNWR	A7	9				43			volunteer
Alviso	DESFBNWR	A5								SFBBO
Alviso	DESFBNWR	A9/A10			0					SFBBO
Alviso	DESFBNWR	A6			12150					walkthrough
Alviso	DESFBNWR	A5/A7								volunteer
Alviso	DESFBNWR	A8	31	1			14		1	volunteer
Alviso	DESFBNWR	A16	13	3			87		1	volunteer
Alviso	DESFBNWR	A12	55							volunteer
Coyote Hills	DESFBNWR	N6/N7								SFBBO
Coyote Hills	DESFBNWR	2A/3A/4Ab			2472					walkthrough
Dumbarton	DESFBNWR	N1	13	1			46		1	volunteer
Dumbarton	DESFBNWR	N2	8							volunteer
Dumbarton	DESFBNWR	N3	5				7			volunteer
Moffett	DESFBNWR	A2W	17	4			97		1	volunteer
Moffett	DESFBNWR	B1	2				4		1	volunteer
Moffett	DESFBNWR	B2	7		4	64 ^A	181		1	Dan Roby, OSU
Mountain View	DESFBNWR	A1 SE Island	3				14			volunteer
Mountain View	DESFBNWR	A1 NW Island			223					walkthrough / volunteer
Mowry	DESFBNWR	M1/M2			4421					walkthrough
Mowry	DESFBNWR	M4/M5			1820					walkthrough
New Chicago Marsh	DESFBNWR	n/a					0			volunteer
Ravenswood	DESFBNWR	R1	30	4		1	36		3	volunteer
Eden Landing	CDFG	E10				75 ^A				Dan Roby, OSU
Eden Landing	CDFG	E8A						1		SFBBO
Agua Vista	other	n/a				6				volunteer



Site location	Land owner/ operator	Pond / tower	American Avocet	Black- Necked Stilt	California Gull	Caspian Tern	Forster's Tern	Least Tern	Black Skimmer	Method
Belmont Slough	other	n/a	1	6			0 ^B			volunteer
Charleston Slough	other	n/a	5				36			volunteer
Hayward Shoreline	other	n/a	33	1			210	80 ^A	2	volunteer/ D. Reinsche, EBRPD
Mountain View Slough Island	other	n/a	5				36			volunteer
Palo Alto Flood Control Basin	other	n/a			582					walkthrough
Redwood Shores	other	n/a				1	30			volunteer
2009 TOTALS			237	20	21672	147	841	81	11	
2008 TOTALS			308	27	22718	82	874 ^C	64	5	
2007 TOTALS			1304	266	18452	22	766	11	3	
2006 TOTALS			448	345	16475	84	1214	15	5	
2005 TOTALS			437	144	13800	72	771	8	5	

^ANumbers based on total number of nests counted throughout the season ^BNests abandoned in June

^c 2009 numbers based on volunteer counts of peak number of nests. 2008 numbers based on USGS walkthrough data of total number of nests



Table 3. Western Snowy Plover nesting sites and numbers of nests in South San Francisco Bay, CA, 2009 (Robinson-Nilsen et al. 2009).

Location	Nests						
Alviso							
A8	1						
Impoundment	1						
New Chicago							
Marsh	5						
Eden Land							
E6B	2						
E8	17						
E8A	19						
E8X	1						
E12	14						
E14	9						
E16B	24						
E11	6						
E6	1						
E1C	1						
E3C	1						
E4C	1						
E5C	1						
Ravenswood							
R1	4						
R3	2						
R4	2						
R5	2						
RSF2	23						
Warm Springs							
A22	4						
A23	17						
Haywar							
Hayward	4						
OBN-14	1						
Total South Bay	163						

