FINAL 2014 Breeding Season Monitoring Report for Western Snowy Plover and California Least Tern

Hollywood Beach, Oxnard, California

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Hollywood Beach: Western Snowy Plover and California Least Tern
Final Report 2014

EXECUTIVE SUMMARY

The abundance and productivity of the threatened western snowy plover (WSP) (*Charadrius nivosus nivosus*) and the endangered California least tern (CLT) (*Sternula antillarum browni*) were monitored at Hollywood Beach located in Oxnard, Ventura County, California during the breeding season 2014. Activities were conducted according to U.S. Fish and Wildlife Service (USFWS) protocols for nest monitoring under the Endangered Species Act (ESA) by monitors with recovery permits Debra Barringer and Danielle Glenn (permit: TE-35387A-0).

Western Snowy Plover

Nest season monitoring began on March 6, 2014 and monthly WSP population averages varied from 8 in April to 178 in August when migrating flocks began to arrive. The first nest was recorded on April 2nd and a total of 29 WSP nest attempts were located and documented over the season. Of these, 23 nests hatched at least one chick for a hatching success of 79 percent. Monitors used wire exclosures to protect each WSP nest until hatching and enclosed the entire colony in symbolic fencing with informational signs. Nest failures were attributed to abandonment (possibly in association with extreme wind events), human interference, and unknown causes. WSPs likely benefitted from the presence of a large colony of nesting CLTs in close proximity to assist in nest area defense. Fledging success was difficult to assess with only weekly monitoring and no banding occurring in Ventura County.

California Least Tern

Hollywood Beach had a second season of very high nesting attempts by CLTs with 120 nests documented. CLT nests were first located on May 26. Of the 120 CLT nests initiated, 60 nests hatched 88 eggs and from 23 to 29 fledglings were estimated. Four American crows were responsible for about two weeks of depredation events in early June, likely early enough that these pairs were able to re-nest either at the same or another location. Adult CLTs and fledglings remained in the area until September 14th.

Hollywood Beach issues include not being able to track chick fates and the lack of safe cover, especially near the high tide wrack line where WSPs obtain the majority of food prey. Potential hazards include humans with beach vehicles and with on- and off-leash dogs in proximity to the nesting area. As during last season, monitors had the valuable volunteer help of docents to educate visitors regarding the presence of nesting birds and colony fencing.

INTRODUCTION AND SITE DESCRIPTION

Hollywood Beach is located in Ventura County on the west side of the City of Oxnard (Figure 1). It is located between the Oxnard State Beach on the north and the entrance to the Channel Islands Harbor on the south; Figure 2 depicts the nesting bird survey area. Hollywood Beach is owned by Ventura County and managed by the Ventura County Harbor Department (HD). It is a popular recreational and tourist beach. Maintenance includes winter beach grooming by HD in front of the homes except in the dune field area. All year, residents can hire a tractor to remove sand from in front of their homes to be pushed toward the beach. Other activities that occur at Hollywood Beach include a summer junior life guard training program and Fourth of July activities at the Harbor that attract very large crowds to the area and include fireworks. Lifeguard towers, a restroom building, and trash cans are provided for public use and serviced daily by the HD staff in vehicles. The HD staff also stores nest exclosures and fencing material that monitors use and have access to.

The south end of the beach is wider with a dune field that buffers the sandy beach from the developed area (Figure 2). Some of the dunes are quite high, likely due to sand build-up caused by the presence of deep-rooted, European beachgrass (*Ammophila arenaria*). The breeding season survey area is approximately 1.5 miles long and includes the USFWS final revised critical habitat designation for WSP (Federal Register 2012). As observed last year, all of the nesting activity by both species took place in the southern portion of the survey area primarily on the beach side of the dune field. This area is also known as the "sand trap" as it was designed in conjunction with harbor development to capture sand before it enters the harbor mouth.

Figure 1. Hollywood Beach Region

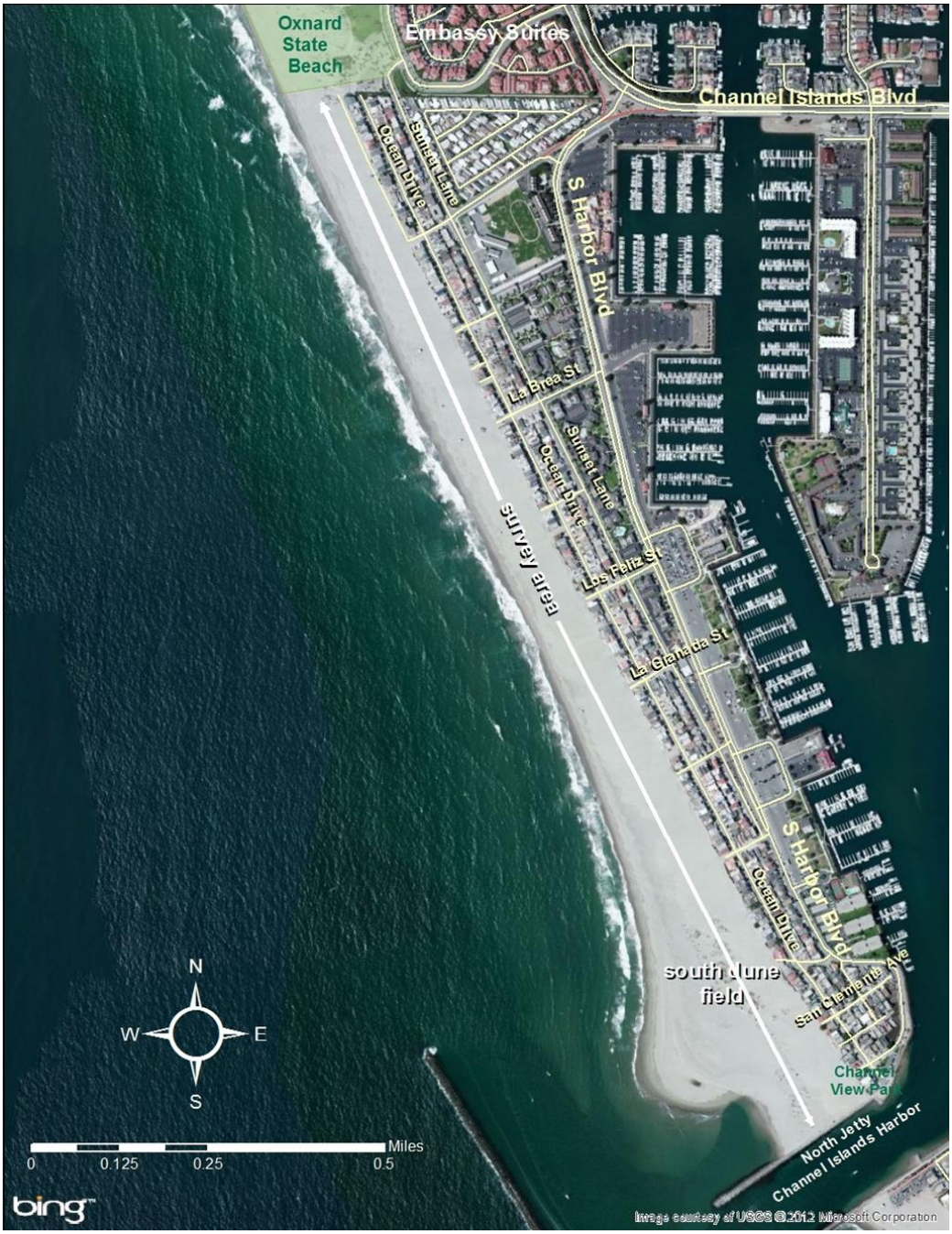

Figure 2. Locations of Survey Area Monitored at Hollywood Beach

Western Snowy Plover

The Pacific coast population of the WSP breeds along the coast of the Pacific Ocean in California, Oregon, and Washington, U.S. and in Mexico (Page et al. 1991). Loss and disturbance of habitat, predation pressures from a wide variety of animals, and other disturbances of breeding bird have caused the decline of the coastal population of WSP and led to federal listing as threatened under the ESA on March 5, 1993 (Federal Register 1993). Hollywood Beach is part of Recovery Unit 5 and is Recovery Site CA-97.

California Least Tern

The California population of the least tern nests on the beaches of central to southern California. CLTs use beaches with wide expanses of relatively flat, undisturbed, and partially vegetated sand for their large nesting colonies. Much of their breeding habitat has been so altered and developed as to reduce nesting to a few areas. The California subspecies was federally listed as an endangered species in 1970 and as endangered under the state in 1980. Recovery Plan goals are to prevent extinction and return the population to a stable status (USFWS 1985).

METHODS

Population Abundance

Nest monitoring surveys were conducted a minimum of once weekly with monitors checking the entire beach early in the season and focusing on the southern end during active breeding with occasional checks further north. Monitoring was systematic and a tight grid was walked each week focusing on relocating marked nests and finding new ones. As the density of both WSP and CLT nests increased, transects walked were adjusted accordingly so as not to miss any nests. Adult WSPs observed were recorded, as well as chick and fledgling numbers when present. Chick age-week was estimated and associated with a nest number when possible. Adult CLT numbers had to be estimated once the colony grew busier and above 50 birds. The breeding season surveys were conducted until 4 weeks after the final nest hatched.

Nest Fate

During weekly surveys, parallel transects were walked by the two monitors covering the primary nesting area. Searching for new nests included assessing adult bird behavior for potential breeding activity and waiting for a bird to return to a nest site if applicable. As in the past, the HD staff continued to watch for and receive calls from the public regarding any suspected nests that were not in the colony area and alert the monitors. Located nests were marked with inconspicuous numbered driftwood or wooden tongue depressors placed approximately 3 feet seaward. Mini-exclosures were placed over WSP nests to reduce incidences of predation and minimize most human-caused disturbance. Exclosures are constructed of wire mesh cubes 3 x 3 x 3 feet with 2 x 4-inch openings. After exclosure placement, the nest was watched to make sure the brooding parent WSP returned to the nest. Two large portions of the breeding area in the southern end of the beach were enclosed with symbolic fence consisting of wood stakes, a single rope or string strand, bright flagging tied on ropes, and both official USFWS signs and child-created informative signs. This was accomplished with the help of Oxnard City Corp youth. When nests occurred outside the fence, they were either incorporated into the larger fence or another small symbolic fence was erected around the nest(s) until hatching. Consideration was given to visitor' access to the beach and a walkway was left unfenced between the two large fenced areas.

All nests located were recorded by date found, GPS coordinates recorded as UTMs on a Garmin 72H GPS unit (with approximately 12-ft accuracy), number of eggs, and whether attended by a parent. Exclosures were anchored with 3-4 landscape pins after strong winds blew several over and in some cases blew exclosures away early in the season. Recorded nests were checked weekly until hatching, predation, or if non-viability was apparent. Nest hatching was determined by locating either an egg pip shell within the empty nest, observing displaying behaviors from adults in the vicinity of the nest, or by locating chicks when possible. A nest is determined to be successful if at least one of the above signs is observed. When a nest is found without eggs and none of the above signs is observed, evidence of predation is investigated. Evidence of predators includes animal tracks, large shell fragments and/or egg yolk in the scrape or within 2 meters, and the physical presence of an animal predator in the vicinity (Mabee 1997). Where possible the species of predator is determined or at least whether it was mammal or avian. Egg non-viability due to abandonment was determined by a combination of not seeing a parent bird near the nest over a couple weeks, checking the nest for a minimum of the brooding time period (4 weeks for WSP, 3 weeks for CLT), and then placing one egg on end in the scrape to see if it is repositioned by a parent by the next week. If the egg has not been moved, the nest is considered abandoned and egg(s) non-viable.

Breeding Adults

The number of breeding adults was counted whenever possible. It was a particular challenge to determine the numbers of breeding adults for both species this year again as the two species were nesting in close proximity and there was usually much activity when monitors were present in the breeding area. Breeding WSP adult numbers could be estimated by adding the number of active nests and the number of active broods sighted on the same survey date. One breeding male and female were attributed to each active nest and one breeding male was attributed to each active brood. It is reasonable to assume some adult WSPs may have bred and nested more than once on this beach. For CLTs, numbers of breeding adults each week was estimated based on known number of active nests and on monitors' observations.

Banded Birds

During weekly surveys birds were examined for leg bands through binoculars. All band combinations were seen on WSPs and reported to Frances Bidstrup at the Point Blue Bird Observatory (formerly known as Point Reyes). CLTs were also monitored for bands and/or transmitters but none were observed.

RESULTS

Population Abundance - WSPs

WSP Adults

In April the average monthly number of breeding adult WSPs present was 8 compared to 174 individuals in August (Table 1 and Figure 3). Once breeding activity began to increase in May, the average number of adult individuals observed was 17 and in June the average increased to 20. During both of these months the nesting activity varied very slightly (from 3 to 8 consecutive active nests). During July the adult population increased to a high of 161 WSPs (monthly average of 76) including migrating and newly-fledged birds that arrived on the beach. In August large numbers of WSP began congregating on the beach, and flock sizes counted ranged from 163 to 192 with a monthly average of 178. All of these findings are surprisingly similar to those for 2013.

A comparison to results from past years of adult breeding WSPs at Hollywood Beach is presented in Appendix A, Figure A-1. These numbers were calculated for adults present when nests and chicks were also present to focus on breeding birds, which was April through August. The August numbers in recent years were greatly inflated with the arrival of migrating adults coincidental with broods still being raised.

Table 1. Hollywood Beach Western Snowy Plover 2014 Population Counts

Date	Total All	Total Adults	Females	Males	Un-known	Chicks	Fledges	Active Nests
3/6	5		2	3				
3/16	35		20	15				
3/23	23		11	12				
3/28	20		9	11				
Mar Avg	**21**							
4/2	7		4	3				3
4/9	8		5	3				3
4/14	8		5	3				4
4/18	8		5	3				5
4/23	11		9	2				5
4/27	8		5	3				3
Apr Avg	**8**							
5/2	20	20			20			3
5/8	14	14	8	6				5
5/15	8	8	6	2				5
5/20	25	20	11	9	3	2		6
5/29	18	16	7	9		2		6
May Avg	**17**							
6/5	7	7	3	3	1			8
6/12	10	9	7	2		1		7
6/18	15	14	10	5		1		7
6/26	22	20	10	5	5	2		8
6/29	45	40			40	5		
June Avg	**20**							
7/4	31	24	10	6	8	7		10
7/10	67	65	11	5	49	2		11

Table 1. Hollywood Beach Western Snowy Plover 2014 Population Counts (cont.)

Date	Total All	Total Adults	Females	Males	Un-known	Chicks	Fledges	Active Nests
7/17	40	40	13	7	20			9
7/24	80	72	10	2	60	8		7
7/27	161	159	19	4	136	3		6
July Avg	**76**							
8/1	180	175			175	5		3
8/10	171	169	3	4	162	2		0
8/16	163	161				2		0
8/24	192							
8/31	183							
Aug Avg	**178**							

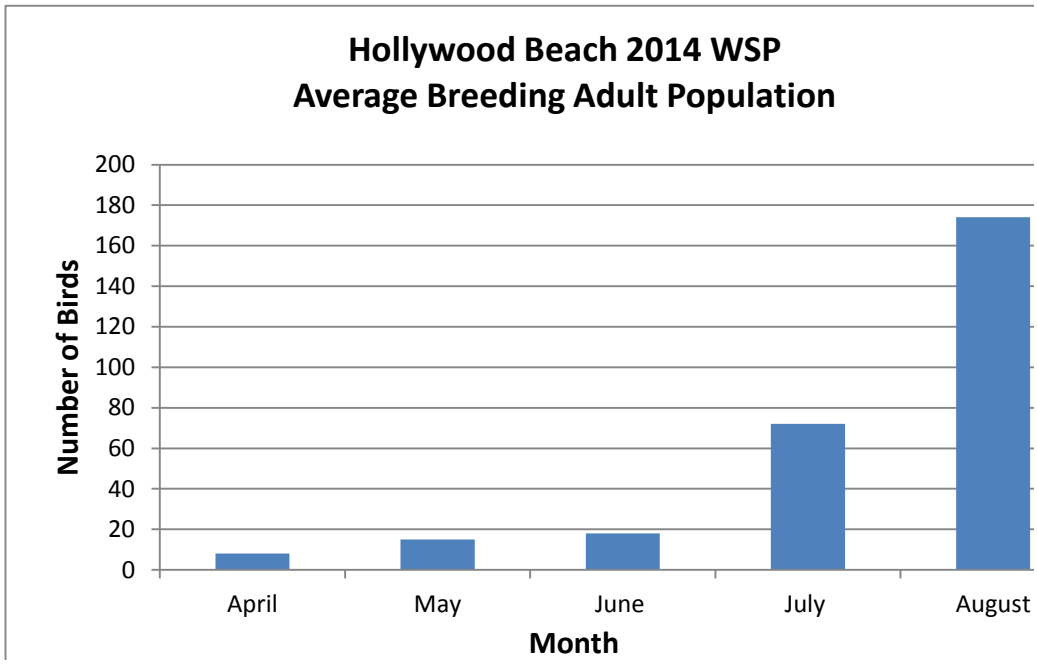

Figure 3. Average Adult WSPs Present During Breeding Season

WSP Nest Outcomes

The first WSP nest of this year was discovered on April 2, 2014 and the last nest was recorded on August 1, a bit later than the last nest in 2013. A total of 29 nests were initiated, one less than in the record year of 2013 and once again primarily concentrated in the southern end near the dunes. Figure 4 shows nest locations and outcomes for 2014. The aerial photos available were recent (2013) but contained photo brightness discrepancies. This photo included the beach "sand trap" size and shape very similar to what was seen during the 2014 breeding season. This portion of the beach where the WSPs and CLTs nest changes quite dramatically year to year due to sand build-up. All of the 2014 nests were well inland from the high tide line, but a couple unusually high tides did affect some symbolic fencing. The monitors also had the impression that more of the WSP nests were located either adjacent to in within live or dead vegetation this year. As seen last year, the benefit to the WSP for placing nests in and near CLT nests seemed to be an increase in overall breeding colony defense. Least terns are persistent nest area defenders that utilize calls, diving flights, and even defecation onto potential nest predators that

Figure 4. Hollywood Beach 2014 Documented WSP Nest Locations and Outcomes
(recent aerial photos contained brightness discrepancies)

approach the area. This behavior was observed many times during the peak nesting weeks and the most common potential predators to approach the colony (gulls) were swiftly chased away. The human nest monitors were also harassed by CLTs as they located marked nests and searched for new ones On July 10, 2014 the highest combined number of active WSP nests and broods was used to calculate the highest consecutive number of breeding adults representative of the season, which was 24 (Table 1 and Figure 5).

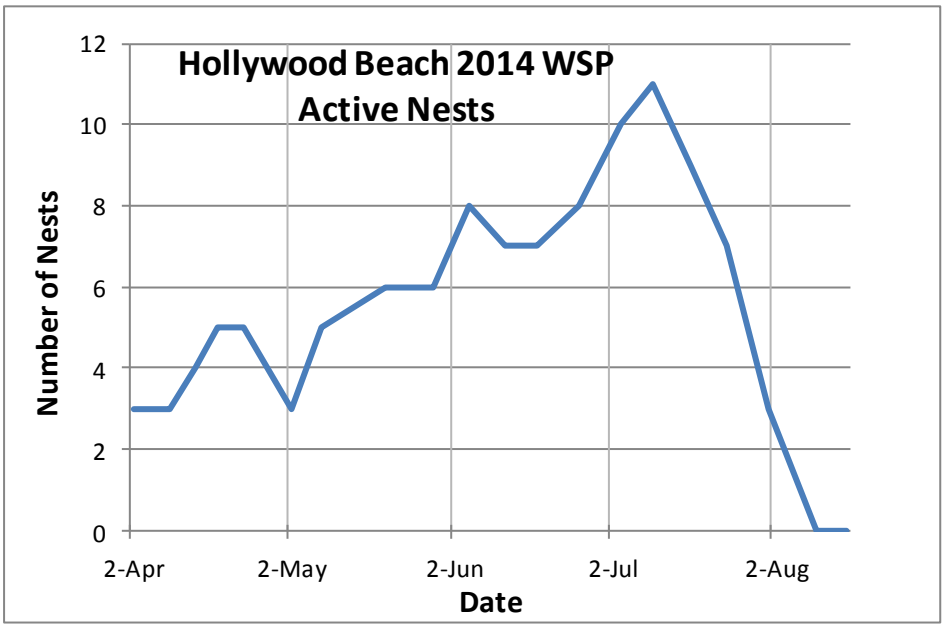

Figure 5. Hollywood Beach 2014 WSP Nest Activity

WSP Nest Fates

Of the 29 WSP nest attempts in 2014, 23 hatched at least one chick for a 79 percent hatch success. Hollywood Beach has consistently shown hatching success to be above 50 percent since 2006 and often above 70 percent. Appendix A, Figure A-2 depicts the WSP nests initiated and hatched over the last several years. Some of this success is likely attributed to the use of predator exclosures compared to other nesting areas within and outside Ventura County that do not use the exclosures and experience high nest predation. In addition, this beach is visited by far fewer predators than more remote beaches because it is primarily urban in nature. This year, however, the frequent presence of American crows in June adversely affected CLT nest success but in only one case was known to affect WSPs. In this instance witnessed by monitors, a group of four crows was undeterred by the tern defense tactics as they depredated CLT eggs. While checking CLT nests, one crow also took advantage of a hatching WSP nest and waited outside the exclosure for the hatchlings to walk out to be depredated. Monitors chased the crows away from the area when this behavior was seen with one hatchling left in the exclosure.

Early in the season there were some strong wind events that blew exclosures off nests subjecting eggs to potential predation/abandonment. This caused the loss of two WSP nests (4 eggs). A new procedure to anchor exclosures with 6-inch landscape pins proved successful and may have even dissuaded dogs or humans from easily moving/disturbing exclosures as well.

Direct human disturbance was attributed to the loss of two WSP nests (where the exclosure was removed and even damaged), and two nests had unknown fates (Table 2 and Figure 6). One disturbance incident occurred early in the season at Nest #3, which was located away from the other nests and partially hidden from view in the dunes. At this time, the large symbolic fences were not in

place yet and nests had to be individually (or by close groups) fenced and signed. On April 27th, Nest #3 was found with eggs gone 16 days after first recorded, with its fence down in several places, and the exclosure moved. Human footprints and dog tracks were present within the fenced area near the nest. It is difficult to say whether the human and dog passed by before or after the fence, exclosure, and/or eggs were removed. The displacement of the exclosure could have also been attributed to wind. Another incident on June 26th occurred where the exclosure was found off and damaged with human footprints around it, and the 3 WSP eggs broken and scattered away from the nest. In both cases, predators may have attacked the eggs once the exclosure was removed.

This year there was also a curious behavior shown by two nesting WSP females. After monitors placed the older, heavier-gauge (and rusted) exclosures over these two nests, the females balked at returning to the nest. This behavior had not been seen when using these exclosures in the past; however, any hesitation is a concern. Monitors immediately removed those exclosures and had newer, finer-gauge wire ones to replace on nests followed with the immediate return of the females (in both cases) to their eggs. Monitors plan to stop using the older heavy-gauge exclosures. Two non-viable WSP eggs and one dead chick were collected and delivered to the Western Foundation for Vertebrate Zoology (WFVZ) in Camarillo. No egg or chick mortality was caused by monitors.

Table 2. Hollywood Beach 2014 Western Snowy Plover Nests Fates

Nest #	Date Found	Date of Hatch/Other	Eggs Laid	Eggs Hatched	Comments
14HB-01	4/2	4/27	3	3	Success
14HB-02	4/2	4/27	2	2	Success
14HB-03	4/2	4/18	2	0	Nest area appeared to be vandalized by humans, where footprints observed, fence down in places, exclosure moved, and eggs were gone.
I4HB-04	4/14	5/20	3	2	One egg non-viable
14HB-05	4/18	5/15	3	3	Success
14HB-06	4/18	4/27	3	0	Eggs buried by wind/sand, then abandoned.
14HB-07	4/27	5/2	1	0	Unknown fate, exclosure blown off in wind.
14HB-08	5/2	5/29	3	3	Success
14HB-09	5/8	6/5	3	2	Nest placed several hundred feet north of fenced colony, one egg non-viable.
14HB-10	5/8	6/5	3	2	Eggs had been buried in sand, then un-buried by parent. On 6/5, one egg still in nest after 2 suspected hatches.
14HB-11	5/15	6/12	3	3	Two (possibly 3) chicks likely predated by crow waiting outside exclosure. Monitors chased it away.
14HB-12	5/20	6/12	3	3	Success
14HB-13	5/29	7/3	3	3	Success
14HB-14	5/29	7/4	3	2	One egg non-viable
14HB-15	6/5	6/18	1	0	Abandoned by 2nd week.
14HB-16	6/5	7/17	3	2	One egg non-viable
14HB-17	6/12	7/10	3	3	Success
14HB-18	6/20	7/10	3	3	Success
14HB-19	6/20	7/17	3	1	Week after first hatch, found 2nd eggshell nearby with holed pecked in it, did not find 3rd egg.
14HB-20	6/20	6/26	3	0	Exclosure was likely vandalized and eggs either broken and/or predated after. Broken shells found a distance away.

Table 2. Hollywood Beach 2014 Western Snowy Plover Nests Fates (cont.)

Nest #	Date Found	Date of Hatch/Other	Eggs Laid	Eggs Hatched	Comments
14HB-21	6/26	7/24	3	3	Success
14HB-22	6/26	7/24	3	3	Success
14HB-23	6/26	8/1	3	3	Success
14HB-24	7/4	7/24	3	3	Success
14HB-25	7/4	8/1	3	3	Success
14HB-26	7/10	8/10	3	3	Success
14HB-27	7/10	8/1	3	3	Success
14HB-28	7/10	8/1	3	0	On 8/1, 1 egg on scrape, another egg a distance away thought to be from this nest, neither hatched, third egg unknown fate.
14HB-29	7/17	8/10	3	3	Success
Totals			**81**	**61**	

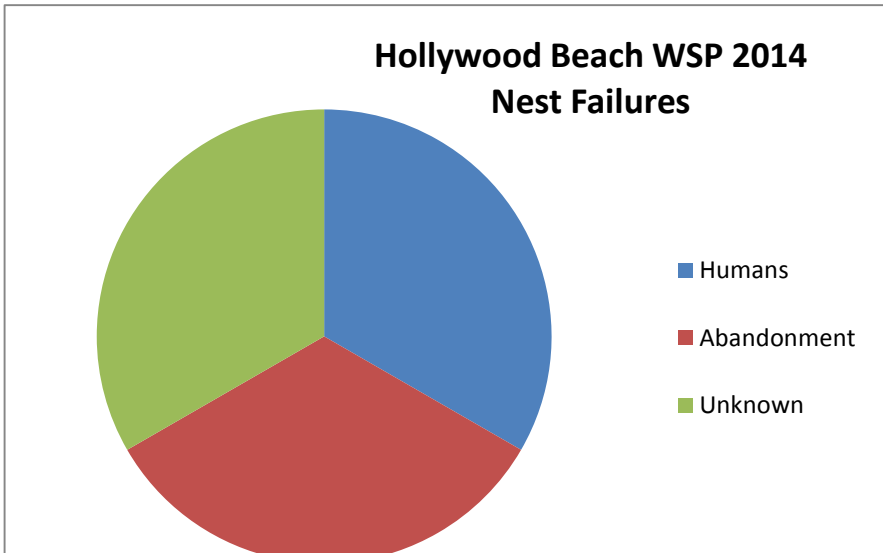

Figure 6. Hollywood Beach 2014 Reasons for WSP Nest Failures

WSP Chicks

WSP chicks were observed fairly consistently during the season (Figure 7) with peak chick activity in late June and in late July; the first wave a month after last year. With the sometimes confusion of having the breeding WSP broods intermixed with the large CLT population, it was not always possible to do thorough chick searches as monitors concentrated on finding CLT nests. Lessons learned from last year helped the monitors to be more careful this year to adjust their transect walking as necessary so as not to accidentally 'chase' chicks out of the symbolic fence. Consequently the majority of chick sightings were inside the fence where they at least had a buffer from the general public. Monitors felt even the symbolic barrier provided protection from the majority of human, dog, and vehicle traffic. The observed lack of footprints/tire tracks within the fenceline was proof of this difference in traffic.

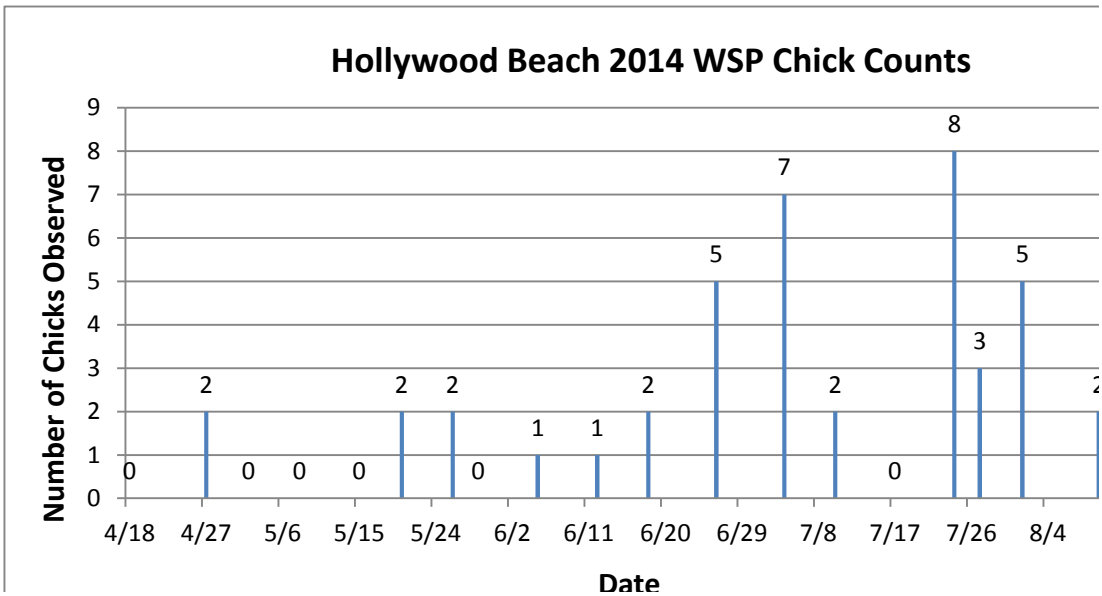

Figure 7. Hollywood Beach 2014 WSP Chicks Observed

Other bird species were seen to roost overnight within the fence as well, which may also support the theory of the fences providing the protection of distance from beachgoers. Another observation made this year was that male WSPs with broods seemed to take them into the vegetated foredune areas in the afternoons after foraging at the wrack line. This would indicate the value of the smaller, vegetated dunes as chick-rearing habitat. With weekly surveys, tracking chicks to fledge stage was not possible. Monitors observed many second-week chicks but no third-week or fledge-stage WSP chicks.

Banded Birds

Banded WSP observed during the survey period were recorded and the data was sent to Frances Bidstrup, with Point Blue Bird Observatory (PBBO). Records checked by Frances revealed that birds observed on Hollywood Beach were banded at Vandenberg Air Force Base (VAFB), Oceano Dunes State Recreation Area, Monterey State Beach, Humboldt County, Moss Landing Salt Ponds, Salinas National Wildlife Refuge, and there was a March visit by an Oregon bird. In July and especially August an increase in banded birds was observed with as many as 14 different individuals seen in August. One banded female seen three times in 2014 has quite a local history. This female (NO:OY) was originally banded at VAFB in 2009, was frequently observed in 2010 and 2011 on McGrath State Beach, nested there twice in 2012, paired with a third male at Mandalay State Beach in 2012, and then was seen three times on Hollywood Beach in 2012. She also was seen in April and May of 2013 at McGrath before travelling to Hollywood Beach and establishing a nest in 2013. In addition to the three Hollywood Beach visits, she nested at least once at McGrath in 2014 (pers. comm. A. Frangis).

Population Abundance - CLTs

CLT Adults

Monitors began observing flyovers and some hovering/circling flight activity of CLTs at Hollywood Beach on May 2nd, 2014, slightly later than in 2013 (April 28th). As opposed to last year when adults trickled in week by week, CLT numbers primarily remained under 50 birds until July when adult CLTs and nests hit their peak - over 100 CLTs (Table 3). With the flurry of activity during nest finding/monitoring, it was difficult to directly count adult CLTs, therefore estimates were made based on known active nest

numbers for several weeks. Estimated total breeding adult CLTs for this season, taking probable re-nesters into account, were from 154 to 174. A graph depicting the history of estimated breeding adult CLT populations at Hollywood Beach is presented in Appendix A, Figure A-3.

CLT Nest Outcomes

The first CLT nests were recorded on May 26, 2014. After that date, nest numbers rose to a high of 49 consecutively active CLT nests on July 17. A 2-week predation event in June this year potentially slowed down the steady increase in nest numbers as occurred in 2013. Figure 8 shows a close-up of the locations of the documented CLT nests at Hollywood Beach in 2014.

Table 3. Hollywood Beach California Least Tern 2014 Population Counts

Date	Adult CLTs Observed	Chicks Observed*	Fledglings Observed	Active Nests
4/2	0			0
4/9	0			0
4/14	0			0
4/18	0			0
4/27	0			0
5/2	38			0
5/15	26			0
5/20	~35			0
5/26	~36			2
5/29	~50			22
6/5	~60	1		25
6/12	~40	0		16
6/18	~40	1		16
6/26	35+	6		10
7/4	60+	3		25
7/10	85+	7	2	40
7/17	100+	7	8	49
7/24	85+	8	8	43
8/1	65+	17	14	24
8/10	50+	18	16	3
8/16	30+	5	16	1
8/24	~20	3	8	0
8/31	6		1	0
9/8	6		5	0
9/14	2		1	0
9/21	0		0	0

*Chicks observed on and off scrapes

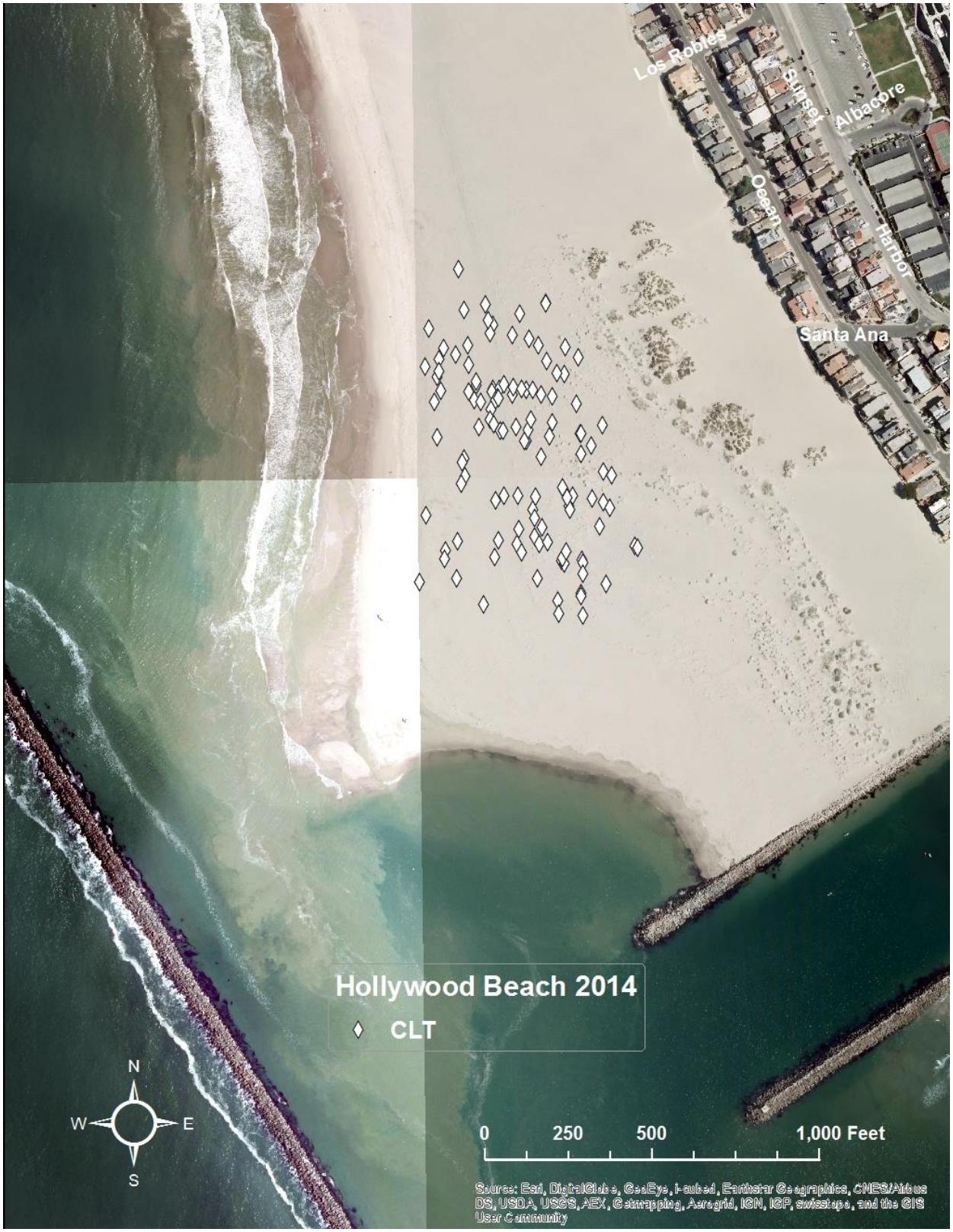

Figure 8. Hollywood Beach 2014 Documented CLT Nest Locations
(recent aerial photos contained brightness discrepancies)

CLT Nest Fates

Of the total of 120 nests initiated, 60 were recorded to hatch at least one chick as verified primarily by presence of defecation near the nest and no sign of egg damage, yolk, or animal tracks present at the scrape. This is a 50 percent hatch success that included 88 eggs hatched. Historic CLT nest success numbers at Hollywood Beach are compared in Appendix A, Figure A-4. The primary reason for nest failure this year was attributable to the June predation event by four crows that walked through the CLT breeding colony depredating eggs and ignoring CLT aerial threats. This predation affected approximately 34 CLT nests followed by abandonment of others. Figure 9 depicts graphically the reasons for CLT nest failures. Because the predation event occurred early in the season, the affected adult CLTs likely went on to re-nest either in this or another location. Monitor saw an interesting shift from most nests being in the southern fenced rectangle, to the northern rectangle, and then back to the southern fence later in the season. Later season failed nests had unexplained disappearances of eggs where no eggshells, or signs of predators or human disturbance were seen. The last nests established were recorded on August 1 and one went on to hatch successfully. A summary of 2014 breeding results is presented in Table 4.

On July 17th, a large section of the symbolic fence was pulled down and all-terrain vehicle (ATV) tracks were found in the breeding area. One CLT egg was very nearly crushed and another active nest was not relocated and likely driven over and eggs buried (Appendix B, Photo B-1). Either the same or a similar ATV was still being documented on the beach into December 2014. Monitors hope to meet with the Harbor Master to discuss issues like this.

Two non-viable CLT eggs and 2 dead chicks were collected and delivered to the WFVZ. WFVZ staff expressed that they didn't need more than two samples from each population so several non-viable eggs were buried on site to minimize attracting scavengers. No takes of eggs or chicks were caused by monitors.

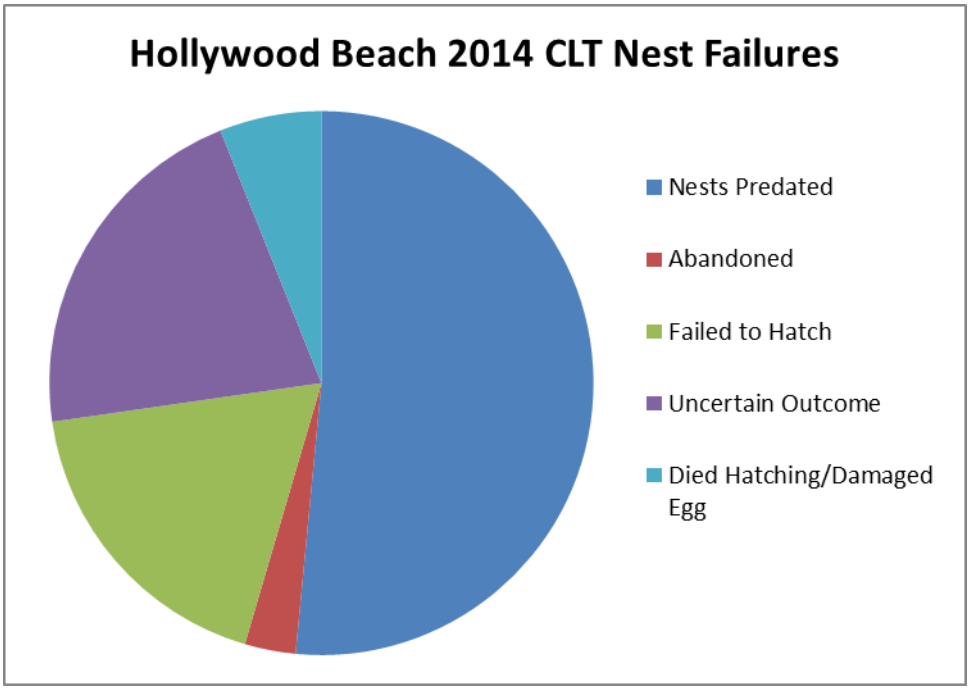

Figure 9. Hollywood Beach 2014 Reasons for CLT Nest Failures

Table 4. Hollywood Beach 2014 CLT Breeding Summary

Date terns first observed	2-May-14
Date terns last seen	26-May-14
Date of first nest	26-May-14
Date last nest found	1-Aug-14
Date last nest established	unk
Date of first hatch	26-Jun-14
Date of last hatch	29-Aug-14
Date of first fledgling	10-Jul-14
Estimated number of pairs	77-87
Total number of nests	120
Total number of eggs	179
Clutch size:	
1 egg	61
2 egg	59
3 egg	0
4 egg	0
unknown (min. 1 egg)	0
Average clutch size	1.49
No. of nests hatching young*	60
Total number of eggs hatched	88
Estimated number of fledglings	29
Number of chicks banded	0
Number of adults banded	0
Uncertain outcome	
Nests*	14
Eggs	24
Documented Mortality	
Preyed upon	
Nests*	34
Eggs**	46
Chicks	unk
Fledglings	0
Adults	0
Human disturbance	
Nests*	1?
Eggs	0
Chicks	0
Fledglings	0
Adults	0
Other mortality causes	
Nests*	
Abandoned (pre-term)	2
Failed to hatch (incubated to term)	12
Died hatching	1
Damaged (eggshell thinning)	0
Flooded	0

Table 4. Hollywood Beach 2014 CLT Breeding Summary (cont.)

Eggs (mortality)	
Abandoned (pre-term)	2
Failed to hatch (incubated to term)	16
Died hatching	1
Damaged (eggshell thinning)	0
Flooded	0
Chicks	4
Fledglings	0
Adults	0
* may be included in more than one category ** not including previously abandoned eggs that were depredated/ scavenged	

CLT Chicks

The first CLT chicks observed occurred on June 5th, almost exactly a month earlier than last year (July 4th) with a high count of 18 chicks seen on August 10th about the same week as last year's high count (Table 3 and Figure 10). The first fledglings were observed on July 10th with a high count of 16 recorded on both August 10th and 16th. Using the 3WD method of calculation (2nd- or 3rd-week-after-first fledge counting min-max), 23-29 total CLT fledglings were estimated for 2014. Some fledglings were seen for several weeks after moving north up Hollywood Beach with their parents. Unlike last year, no remains of fledges (due to predation) were found this year. Of the 88 CLT eggs that hatched in 2014, four chicks were found dead out of or near scrapes and one died in the egg while hatching.

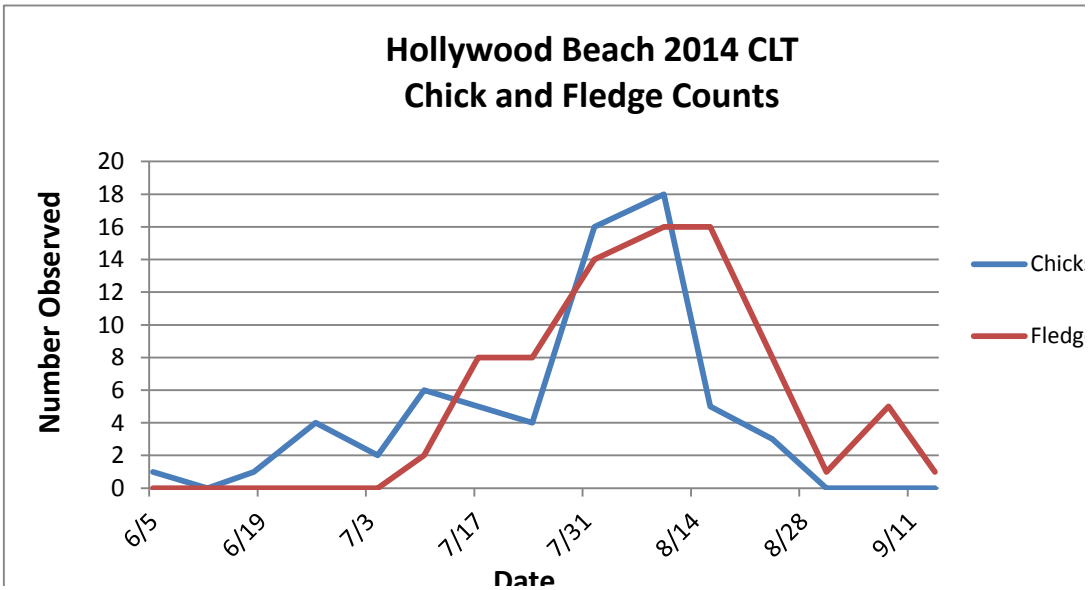

Figure 10. Hollywood Beach 2014 CLT Chicks and Fledglings Observed

DISCUSSION

The 2014 nesting season continued the phenomenal increase in breeding activity by WSPs and CLTs first seen in 2013 on Hollywood Beach. The average number of breeding adults present in months not influenced by migrating WSPs was 11, compared to the recovery plan goal for this beach of 4 breeding adult WSPs (USFWS 2007). WSPs initiated 29 nests on Hollywood Beach in 2014 compared with the annual average of 8.5 nests initiated from 2005 to 2012. The WSP nests continued the historically high hatch rate recorded on this beach at 79 percent (23 nests) hatching in 2014, which included 61 hatched eggs (Appendix A, Figure A-2). Chicks were observed throughout the season and a high of 8 was seen on one day in July. Within hours after hatching, WSP chicks are mobile and leave the nest area to follow their parent birds to begin foraging. On Hollywood Beach this means they leave the protection of the nest exclosure and symbolic fencing. Between the nesting area and foraging area at the wrack line there is very little vegetative cover, only scattered driftwood, and no undisturbed areas for chicks to be safe from people, vehicles, dogs, gulls and other avian predators, so this is one of the greatest vulnerabilities for WSP chicks on Hollywood Beach.

With 120 CLT nests initiated, numbers remained at an over 1,000 percent increase from the average of 11 nests initiated pre-2013. From these nests, 88 CLT eggs hatched from 60 nests in 2014 for a nest hatch success of 50 percent, compared with the average of 0.4 percent pre-2013 (Appendix A, Figure A-4). A high of 18 CLT chicks and 16 fledglings were recorded on August 10th. Least tern chicks are completely dependent upon parents for food even after fledging and are often left unprotected on the beach while parent birds forage. As for last year, the tendency was for parents to move their chicks out of the fenced colony to the north soon after chicks were flying, so perhaps many were not observed. Many more CLT fledglings were reported on McGrath State Beach than fledged there (pers. comm. Frangis). The 3WD method to estimate number of fledglings resulted in 23-29 tern fledglings for 2014. Hollywood Beach was not mentioned in the California Least Tern Recovery Plan (USFWS 1985), but at least over the last two years has proven to be a viable alternative (or additional) nesting site for CLTs.

A lesson learned this year was the toll as little as four predators, in this case American crows, can take on primarily unprotected (CLT) nests. Gulls that showed up during tern breeding were swiftly mobbed out of the colony by CLT adults. In the past, Hollywood Beach had experienced very little predation pressure of WSP and CLT nests/eggs, even though daily human/dog disturbances can be high. Predators that have been present in the past include gulls, the occasional raptor, and American crows were not observed during most of the first record-breaking breeding season in 2013. With the historically patchy, inconsistent nesting attempts and lack of substantial colony size at this beach, predators may not have been aware of the prey resource until later in the 2013 season, when a single peregrine falcon and a red-tailed hawk were observed. However, the crows were present from the start of the 2014 breeding season and showed an obvious lack of fear of the diving CLTs and of humans (including hazing techniques such as shouting, running toward, and throwing rocks) while depredating eggs. A lack of fear could be from these crows being local residents that usually feed on trash. It was observed that people in the nearby parking lot feed birds and this can contribute to crows becoming habituated to humans. The CLTs were likely able to replace these early 2014 season lost nests. Re-nesting for least terns is not uncommon (Massey & Atwood 1981) and was noted at Hollywood Beach in 2004 when Ormond Beach experienced an unsuccessful nesting season (Smith 2007).

For the most part, the vast majority of Hollywood Beach visitors have been respectful of the fenced areas and monitors received no verbal complaints about the fencing this year as they did in 2013. There was a much bigger presence of trained docents on the beach this year which no doubt also helped educate locals and visitors. On several occasions throughout the breeding season, the fence rope was

cut in places and footprints and bicycle tracks were seen traveling through the breeding area. Monitors noted the frequent presence of a man with a bicycle known to be sleeping on the beach overnights next to the symbolic fence on the seaward side. Fortunately, the several WSP nests established in that area were successful. The HD was aware of this person.

Overall, benefits to nest success at Hollywood Beach can be attributed to the combination of the use of nest predator exclosures, educational signage, the large symbolically fenced area that kept the majority of human and dog disturbance at a distance, regular nest monitoring and docent presence, and the 24/7 assistance in nest defense provided by the colony of least terns. Once again it seems reasonable to think that the WSPs may have been attracted to and benefitted from the large amount of nesting activity on this portion of Hollywood Beach as in 2013.

As in past years, survival of both species of chicks to fledge stage is primarily unknown and of concern. Both species must avoid the dangers of frequent humans, dogs, and vehicles on the beach as well as numerous other threats.

It has been noted over the years at Hollywood Beach that there may be a relationship between winter dredging of the near-shore channel that affects the extent of the nesting colony beach width and the number of CLTs and WSPs that choose to nest. The wide area where the nests occurred over the last two years was developed by the Army Corps of Engineers as a “sand trap” to collect sand naturally moving southward, primarily from the Santa Clara River mouth, before it enters the Channel Islands Harbor mouth. As ‘food for thought,’ an informal aerial photo comparison to annual WSP and CLT nest numbers is presented in Appendix C. Dredging and beach width reduction resumed in fall of 2014 and it remains to be seen the potential effects on breeding abundance for the 2015 season. Other factors affecting breeding abundance and preferred locations, including changes in forage prey availability, predation pressure, and other types of disturbances at this and other locations, may also play into reasons for inconsistency in CLTs using Hollywood Beach for nesting. WSP nesting may be influenced by numbers of CLTs that chose to nest there.

As for last year Dan Robinette, Senior Biologist/ Coastal Program Leader at Point Blue Conservation Science (formerly PRBO), Vandenberg Field Station, collected least tern droppings and discarded prey fish from the beach to continue his analysis of prey resources across the CLT range.

Rockfish found on beach in nesting colony July 17, 2014

RECOMMENDATIONS

1. **Issue: Fencing Importance and Unpopularity.** Some of the local residents seem to continue to misunderstand the boundaries of their private property and therefore feel personally affected by symbolic fences on the land where nesting occurs. The private property in fact ends on the inland side of the dunes. The use of large fenced areas has increased nesting success for both CLT and WSP. This is especially evident by the number of chicks and fledglings observed within the fence and the fact that chicks are able to forage (WSPs) or wait for parents to return with food (CLTs) with much less disturbance by humans and dogs. If CLT chicks are frightened away from their nests, they risk not being found by returning parents. On July 27th, a group of at least 32 CLT adults and fledglings were counted using the fenced area as a day roost, another critical habitat need. The lack of disturbance in the fence is often evident by few human footprints within. On a typical weekend day, if the same bird group roosted outside the fenced area, it would be disturbed and displaced throughout the day by the constant traffic of beachgoers, increasing the loss of energy that is needed for upcoming migration and growth potential for young birds.

    a. Potential solution: Erect two large symbolically fenced areas by the last week of February every year and remove at end of September.

    b. Potential solution: Docents continue to be present to explain fences to visitors.

    c. Potential solution: Perhaps local residents that are adjacent to the privately-owned Parcel A need to be reminded of its boundaries, that those boundaries do not extend into the dunes, and that the dunes and rest of the beach are public, county lands that have protections.

2. **Issue: Private Ownership Misunderstandings.** Another incident with ownership involved a monitor catching a local person ripping native plants out of the dune area (after the breeding season) who said that he expected a cleared pathway from his house through the dunes and vegetation to the water to be able to drag his kayak.

    a. Potential solution: See “c.” above and perhaps another meeting with local homeowners.

3. **Issue: Easy Vehicle Access Endangering Chicks.** In addition to monitors documenting an ATV that drove through the nesting area on July 17th, ten days later during the peak of WSP chick season and high fledgling counts for CLTs, a docent observed and talked to two local people who were riding fat-tired golf carts (one of which may have been the ATV that entered the breeding area July 17th) around the nesting area, a direct threat to small chicks on the beach. They expressed to her that it was their right as it was private property (pers. comm. Frangis). The docent talked to HD who told her to refer the matter to the local police department. They were also contacted and a deputy arrived and escorted the remaining ATV off the beach. Monitors/docents should not have to make these confrontations and they can actually be dangerous.

    a. Potential solution: More regular patrolling of and enforcement of local regulations would minimize the conflicts monitors and docents would have to have with rule-breakers. Even once a week patrols with warnings and/or tickets would reinforce the posted rules’ seriousness. Monitors/docents also need clarification of who has responsibility for enforcement of vehicle, dog, and other infractions (County? City? State CDFW?).

    b. Potential solution: There are regular public access points from cross streets that terminate at the beach, some of which allow vehicle access. Add signs at all or most of

these access roads (e.g., San Clemente) prohibiting all but HD staff vehicles on the beach. Best would be the addition of locked gates that only HD has keys for. Without proper signage and control of beach access streets, vehicle riders may enter the beach at any time and claim ignorance of beach rules.

4. **Issue: Annual Fluctuations in Amount of Suitable Nesting Habitat.** With the return of sand trap dredging, the many CLTs and WSPs that have successfully nested at Hollywood Beach in the recent past will likely return next spring to find much less suitable beach habitat adjacent to dunes for nesting. This portion of Hollywood Beach has proven to be a valuable nesting area, especially when other local beaches have nest failure events.

    a. Potential solution: Rehabilitation and restoration of the inland backdunes that are supporting non-native beachgrass and have attained an unnatural height in doing so. Ventura Audubon has discussed this idea with HD and is working on a draft restoration plan to reduce the height of dunes by removing beachgrass. It has been evident after rains that the native plants that are present would likely reseed and spread onto the re-formed lower dunes, reducing the need for a lot of replanting effort or plant material. Reducing unnatural dune heights may create additional habitat for WSPs and CLTs further inland than is possible now with their aversion to tall dunes. Chick broods are often seen using the lower foredunes for cover. Reducing dune heights would also provide the advantages to local residents of restoring views of the water and removing hiding places for people participating in illegal bonfires (Appendix B, Photo B-5), drinking, and sleeping on the beach.

5. **Issue: Dogs Off-Leash.** On- and off-leash dogs will always be perceived as a threat by beach-nesting birds. The majority of people that bring dogs to the beach do so after the 9:00 a.m. curfew on any dogs and also let them off leash when they get to the wet sand. Most are locals who are well aware of the posted rules but since enforcement has been lacking for so long, they continue breaking rules with no threat of penalty.

    a. Potential solution: Even the occasional law enforcement presence during the breeding season with issuance of a couple tickets per day would be likely to change behavior as most are locals.

    b. Potential solution: Provide monitors with a phone number of a responsible official willing to make these contacts (animal control? City? CDFW?) Monitors are still unsure who is responsible for dog rule enforcement and for a response to be effective it would need to be quick.

6. **Issue: Beach Grooming and Sand Moving Affecting Habitat and Birds.** In 2014 HD annual sand-grooming was still being conducted in the first week of March. While this may have been safe timing in the past, WSP nest establishment dates have been occurring earlier. Home-owner hired sand-moving seems to occur throughout the year, endangering the vulnerable chicks.

    a. Potential solution: Shift County HD grooming a bit earlier (before March) as we have seen WSPs nesting earlier and they may be establishing nest spots in early March.

    b. Potential solution: Have the tractor driver contact monitors prior to sand-moving from March through September to discuss current nest locations.

    c. Potential solution: Most important for both types of grooming/sand movement is to leave the fresh vegetative wrack at the high tide line year-round as that is the primary source of WSP food supply. This includes not burying this wrack line with moved sand. Driftwood is also valuable for cover and should be left whenever possible.

7. **Issue: The July 4th Celebration at Channel Islands Harbor.** Once again, the busiest week for WSP nests and chicks was the first week of July (Figures 5 and 7). Unfortunately this coincides with the large celebration at Channel Islands Harbor each year. Monitors usually try to do their nest survey that morning but cannot stay all day to see the effects of crowds and especially the visual and noise of nearby fireworks on nesting birds later in the evening. The combination of human activities and noise must be stressful for the brooding parents. As for last year, monitors also found evidence of home-made rockets having been fired into the nesting colony fence.

a. Potential solution: Continue the emphasis on having docents available most of the day for education and enforcement to keep people away from the breeding colony fence.

b. Potential solution: Best for the nesting birds would be to have the celebration held somewhere else or at least to discontinue fireworks.

California Least Tern Chick Under Cover

ACKNOWLEDGEMENTS

A special thank you to Danielle Glenn for her invaluable assistance in monitoring once again; the success of this effort would be adversely affected without her. Other gratitude goes out to Alexis Frangis for mobilizing and training docents and for occasional monitoring, Bruce Schoppe for pursuing funding and help with fence detail, Cynthia Hartley for grant writing and map creation, and Chris Dellith and Michael Glenn for being agency liaisons. A big help this year was having the Oxnard City Corps youth come out and erect large fenced areas around the breeding colony. Also thanks to the Harbor Department staff that helped moved supplies off the beach and continued to store them. The biggest appreciation goes to Ventura Audubon Society and The Nature Conservancy (TNC) who generously provided funding for monitoring and fencing materials this year. Sincere thanks goes out to those trained docents who volunteered their time to oversee visitation to the area and to educate the public on how extraordinary it is to have these incredible birds call Hollywood Beach their home for the breeding season.

California Least Tern Pre-Fledge

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Personal Communications (pers. comm.)

Frangis, A. California State Parks Environmental Scientist. 2014. From emails dated July 18th and August 12th (fledglings observed), and a December 9th email and a phone call on July 27th (vehicle on beach).

Appendix A. Comparing 2014 with Past Breeding Seasons

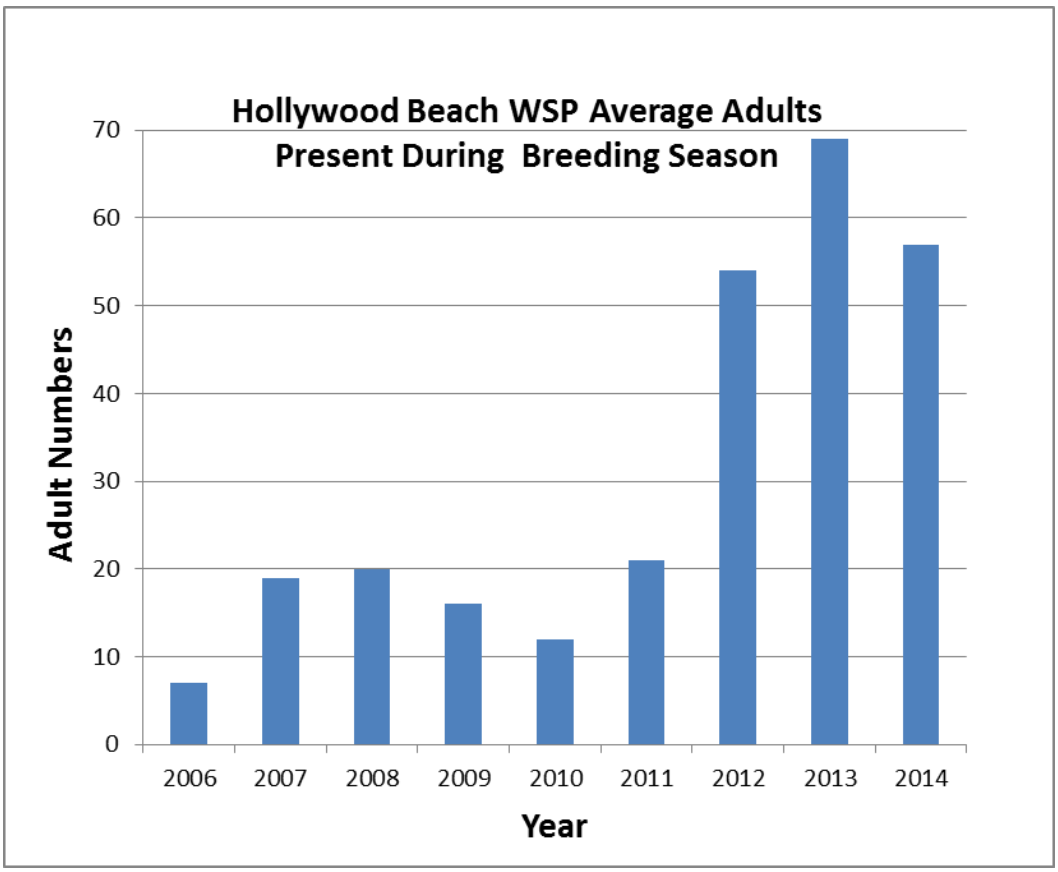


Figure A-1. Average Numbers of Adult WSPs Present at Hollywood Beach During Breeding Season

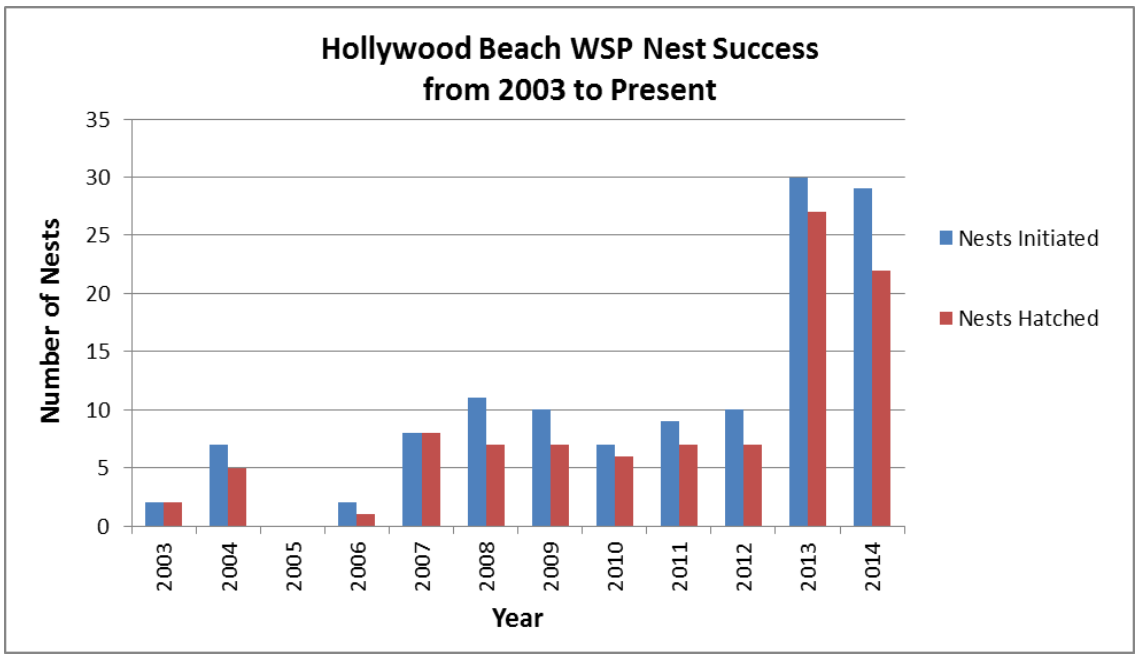


Figure A-2. Hollywood Beach WSP Nest Success from 2003 to Present

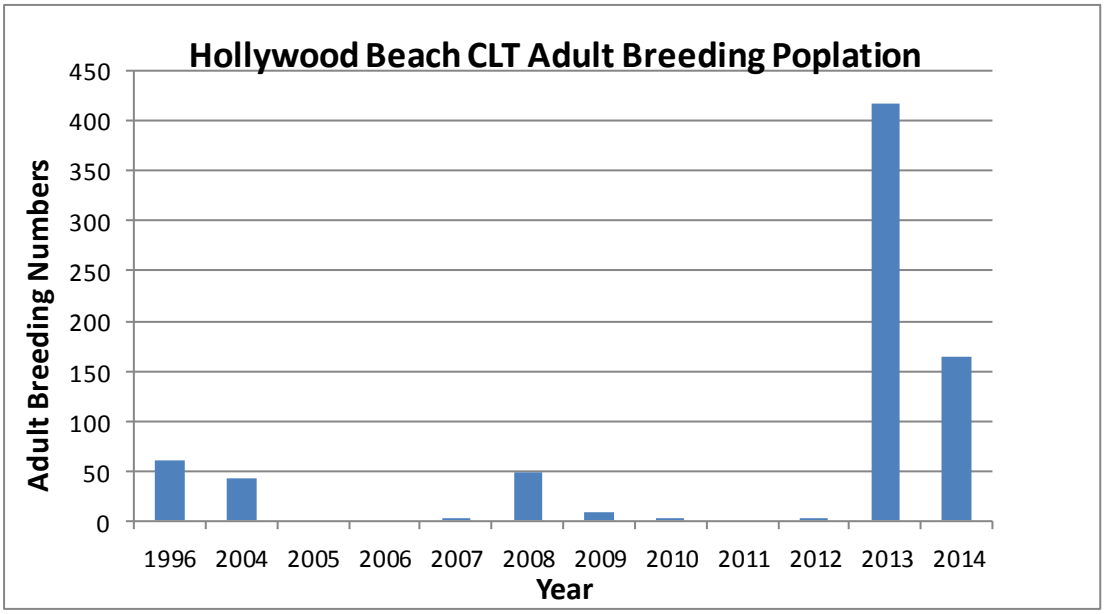


Figure A-3. Average Numbers of Adult CLTs Present at Hollywood Beach During Breeding Season

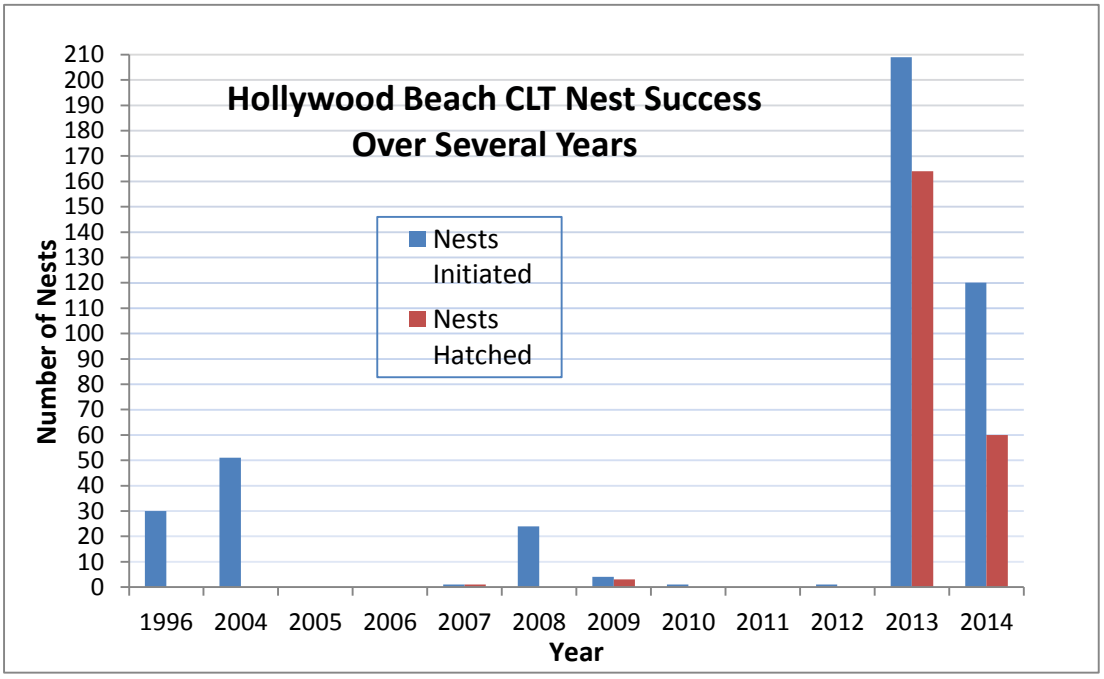


Figure A-4. Hollywood Beach CLT Nest Success from the Past to Present

Appendix B. 2014 Breeding Season Photos

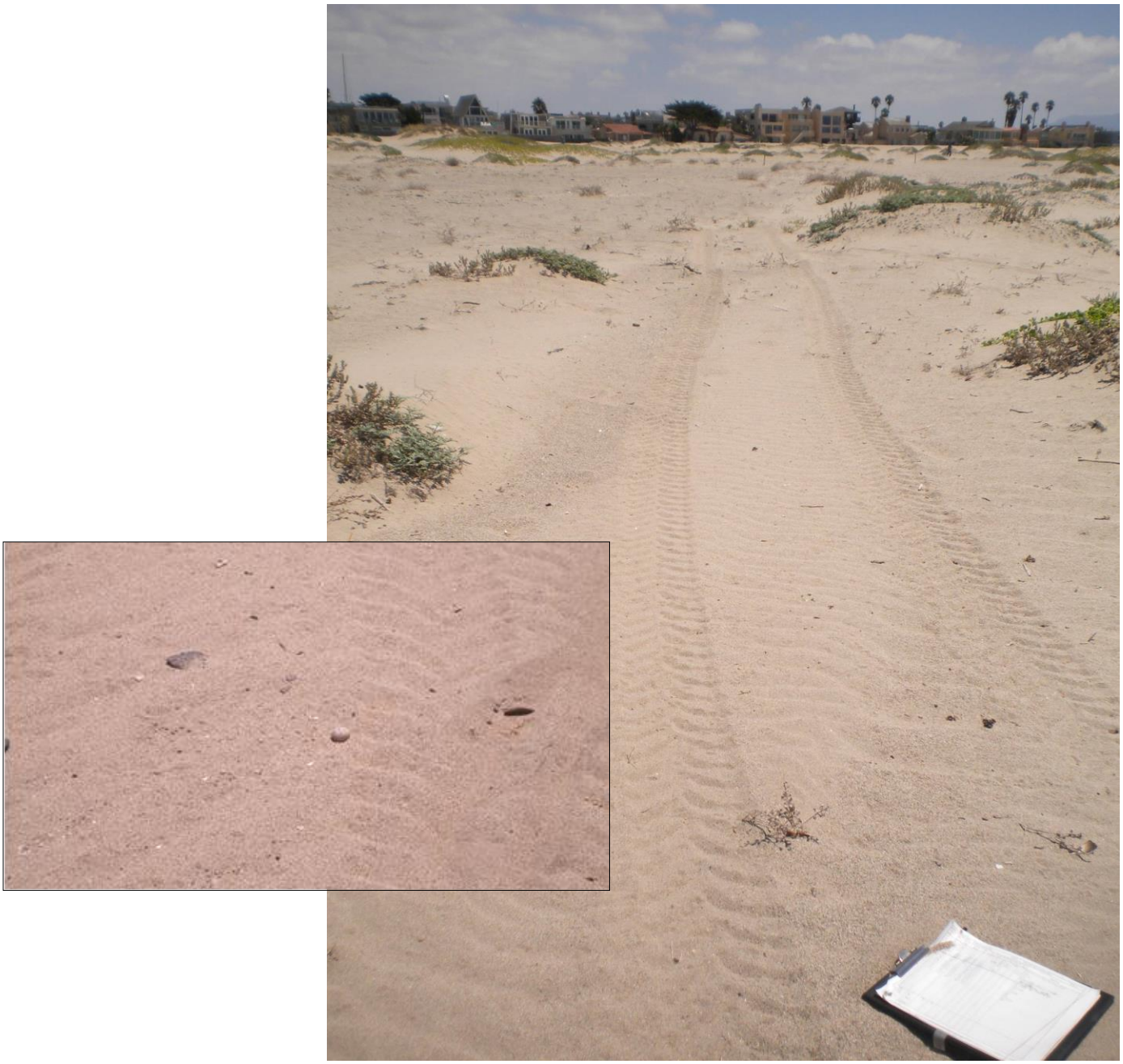


Photo B-1. All-terrain vehicle tracks through breeding colony (inside fence) on July 17, 2014 and (inset) nearly-crushed CLT egg

Photo B-2. A unique use of natural cover for a snowy plover nest. This nest was subsequently buried by wind, unburied by plovers, and hatched two eggs.

Photo B-3. Symbolic fence and child-drawn sign affected by an April high water event.

Photo B-4. Homeowner-hired sand moving near breeding colony fence in July 2014.

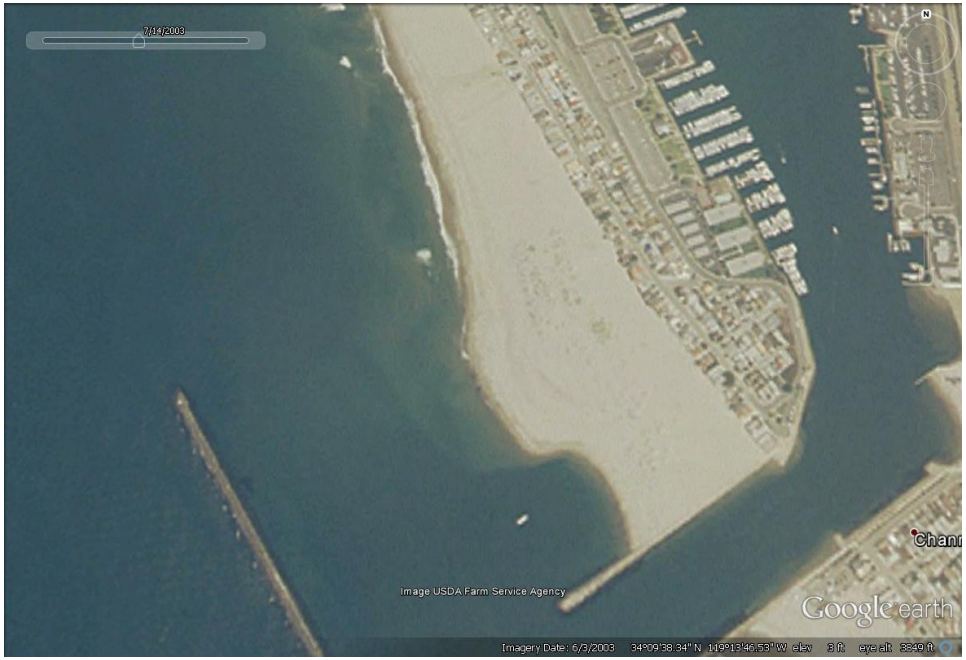
Photo B-5. Active bonfire on seaward side of dunes found morning of June 26, 2014.

Appendix C. Aerial Photo Comparisons to Nest Attempts

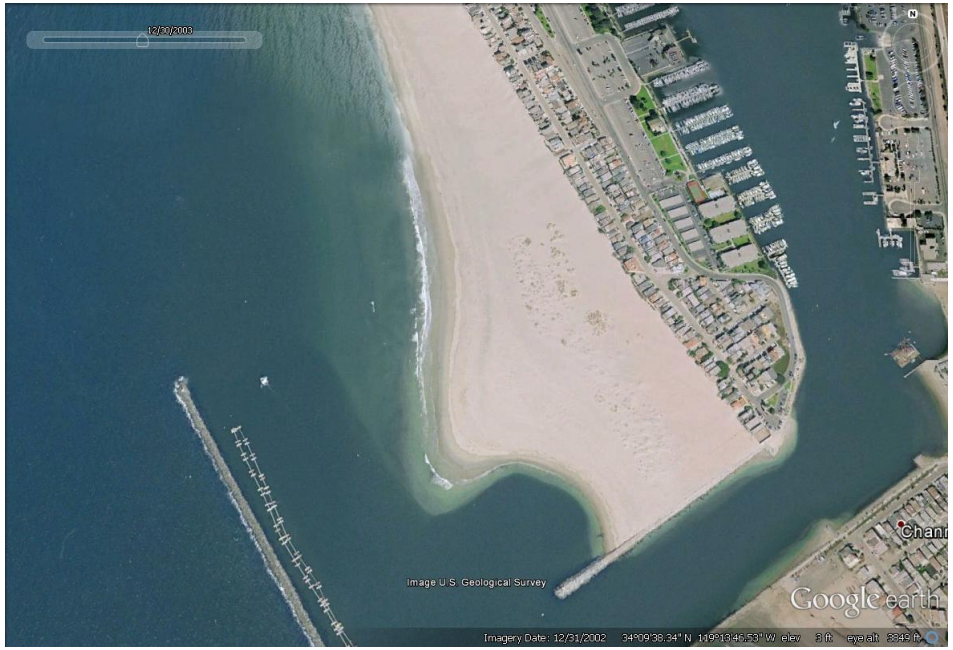
Hollywood Beach
Oxnard, CA

Comparing Historical Aerial Imagery
and WSP & CLT Nest Initiation Numbers

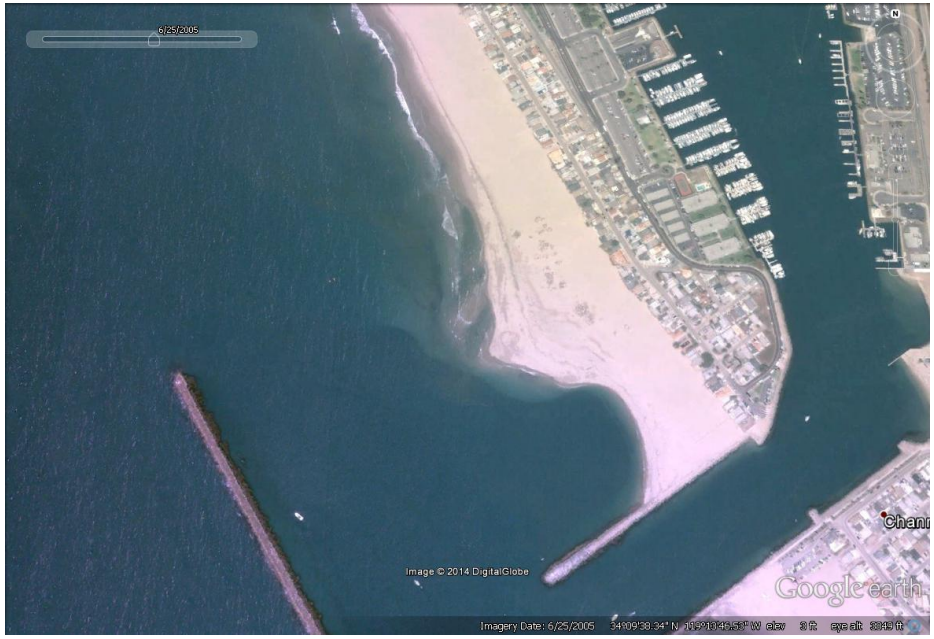
September 1994
(no nest data)



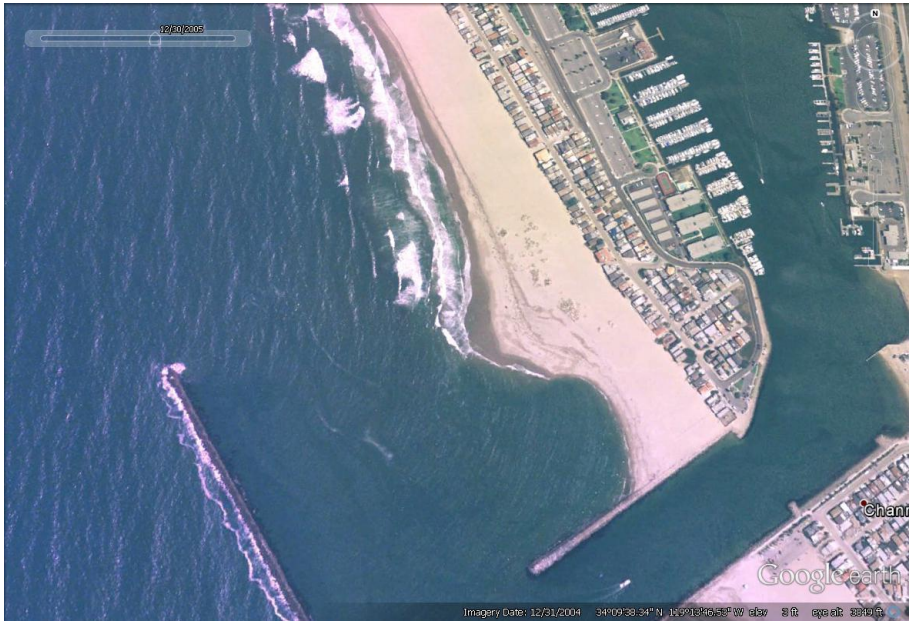
July 2003 (Nests = WSP-2, CLT-0)



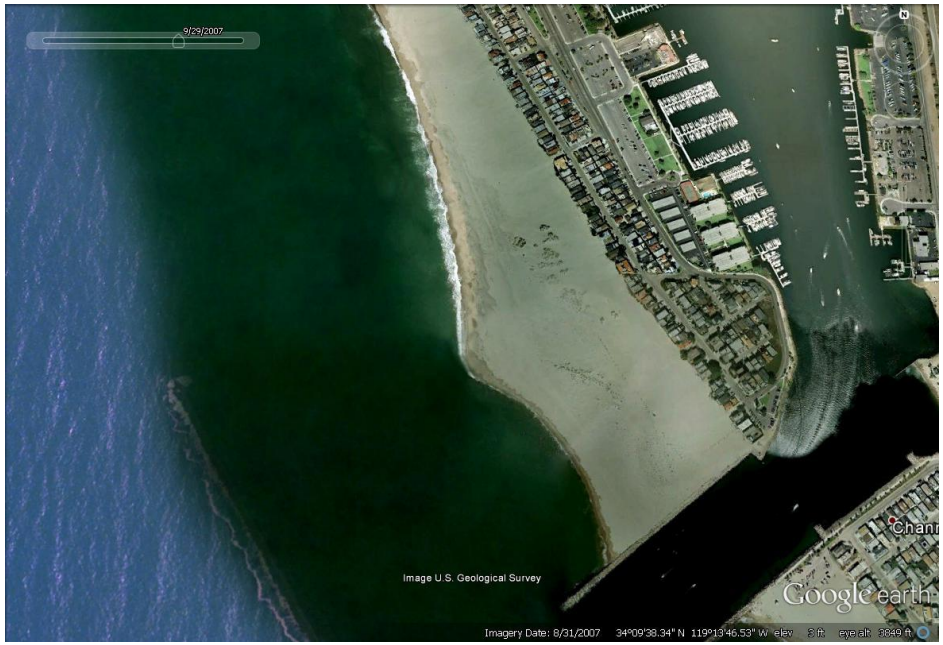
December 2003 or October 2004 (photos appeared to be the same)
(2004 nests = WSP-7, CLT-21)



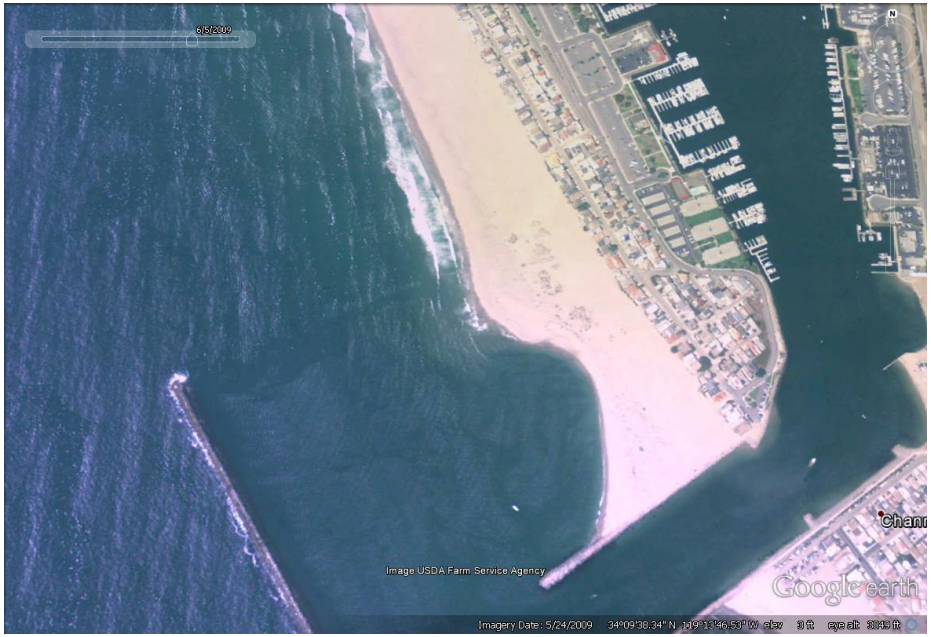
June 2005 (Nests= WSP-0, CLT-0)



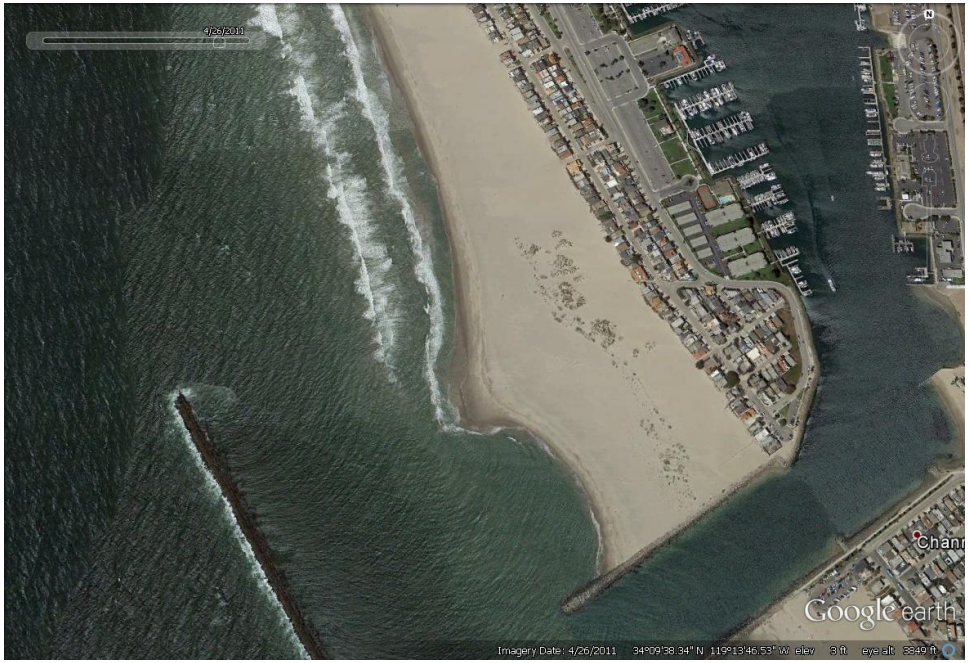
December 2005



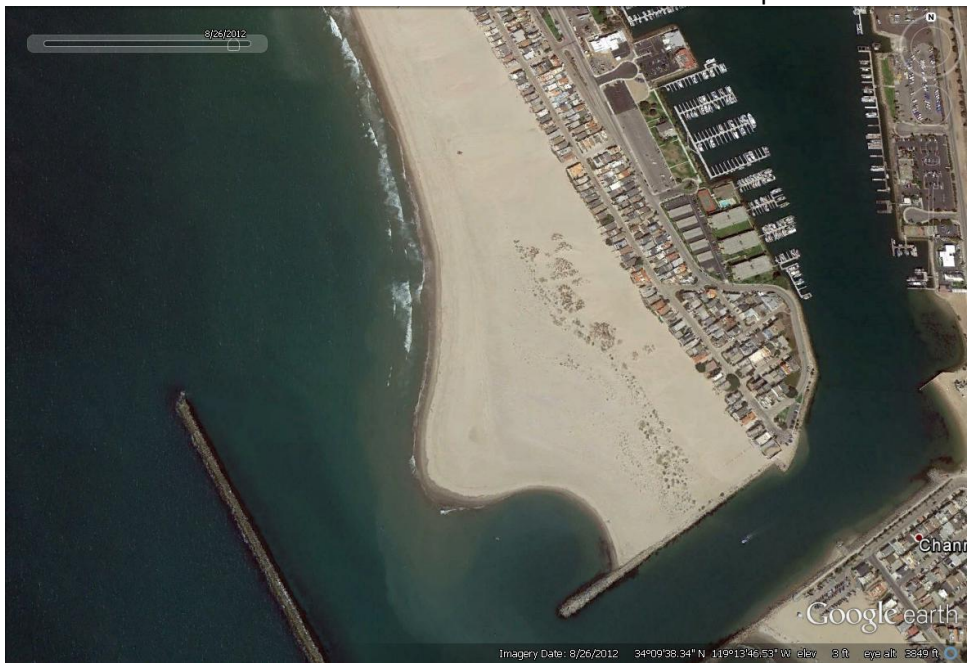
September 2007 (Nests = WSP-8, CLT-1)

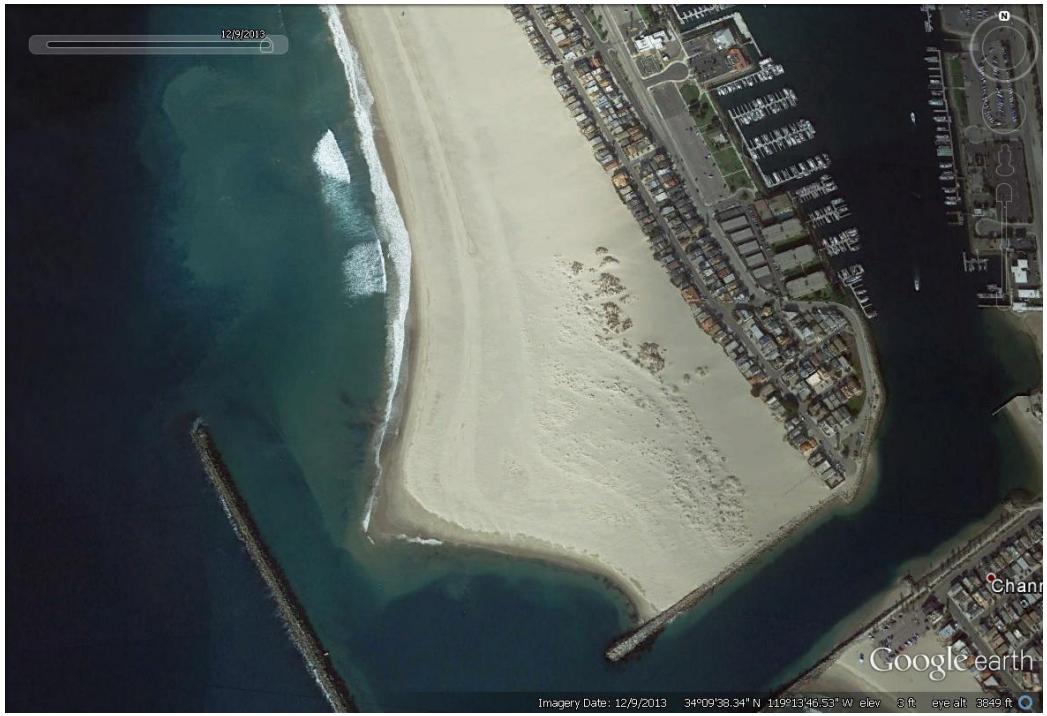


June 2009 (Nests = WSP-10, CLT-4)



April 2011 (Nests = WSP-8, CLT-0)



August 2012 (Nests = WSP-10, CLT-1 egg)

December 2013
(Nests = WSP-30, CLT-210)