

**Black Oystercatcher (*Haematopus bachmani*)
2015 Reproductive Success Monitoring
Monterey Peninsula, Pebble Beach, and Point Lobos
California Central Coast**



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Executive Summary - Monitoring Results

For the 2015 breeding season, the California Central Coast Black Oystercatcher Project monitored 35 territorial pairs in a stretch of the California Central Coast from the eastern end of Pacific Grove to the southern end of the Point Lobos State Natural Reserve in Monterey County, California. There were 12 Black Oystercatcher (BLOY) territorial pairs monitored around the Monterey Peninsula (Pacific Grove), 12 territorial pairs along Pebble Beach, and 11 territorial pairs within the Point Lobos State Natural Reserve. The monitoring was conducted from March through September 2015. Initial egg laying was observed on 27 April and continued with re-nesting attempts as late as 5 August (n=102 days). Of the known 35 territorial pairs, 29 pairs nested: 11 pairs for Monterey Peninsula, 11 pairs for Pebble Beach, and 7 pairs for the Point Lobos State Natural Reserve. In addition, there were 8 replacement clutches, for a total of 37 nests monitored. From the 37 nesting attempts, there were 74 observed and suspected eggs of which 25 hatched chicks, and 5 chicks fledged (i.e., capable of flight). The Central Coast monitoring area as a whole had an egg to fledging success of 6.8% and a breeding pair to fledgling success of 17.2% (n=29).

Egg laying started as early as 27 April and continued throughout an 8 week period. The Monterey Peninsula pairs produced 33 observed and suspected eggs, including 4 re-nesting attempts, hatching 12 chicks, and fledging 2 chicks, resulting in an egg to fledging success of 6.1% and a breeding pair to fledgling success of 18.2% (n=11). The Pebble Beach pairs produced 22 observed and suspected eggs, including 2 known re-nesting attempts, hatching 6 chicks, and fledging 2 chicks, resulting in an egg to fledging success of 9.1% and a breeding pair to fledgling success of 18.2% (n=11). The Point Lobos pairs produced at least 19 observed and suspected eggs, including 2 known re-nesting attempts, hatching 7 chicks, and fledging 1 chick, resulting in an egg to fledging success of 5.3% and a breeding pair to fledgling success of 12.5% (n=7).



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Images 1, 2 & 3. MP1 (Gazebo) nest with three eggs (left), MP8 (Hopkins East) week old chick (middle), and two MP7 (Hopkins West) fledglings (right), Monterey Peninsula.

Background

Research regarding the Black Oystercatcher population in the central coast began in 2011 as part of a California coast-wide, multi-year effort (Weinstein et al. 2014). This coast-wide effort was designed to: (1) Identify Black Oystercatcher distribution and abundance, (2) Determine reproduction success, and (3) Assess the habitat and threats to the habitat in order to determine what actions need to be taken to assist with the long-term success of the Black Oystercatcher. The effort is coordinated by Audubon California in partnership with the U.S. Fish and Wildlife Service (USFWS) and in conjunction with the U.S. Bureau of Land Management's (BLM) California Coastal National Monument.

The Black Oystercatcher, *Haematopus bachmani*, was selected as a USFWS Focal Species for priority conservation action because of its small population size and restricted range and threats to its habitat from human and natural factors (Tessler et al. 2007). In addition, the Black Oystercatcher is listed as a “species of high concern” within the United States, Canadian, Alaskan, and Northern and Southern Pacific shorebird conservation plans (Donaldson et al. 2000; Drut & Buchanan 2000; Brown et al. 2001; Hickey et al. 2003; Alaska Shorebird Working Group 2000). The USFWS also listed the Black Oystercatcher as a “Bird of Conservation Concern” (USFWS 2008).

In 2011, the field portion of the California coast-wide, multi-year effort was initiated with the targeted survey to measure the distribution and abundance of the Black Oystercatcher (Weinstein et al. 2014). In 2012, the reproduction monitoring portion of the project was initiated in California's central, north central, and northern coastal areas. For the central coast, the Monterey Audubon Chapter and California Audubon formed a partnership to conduct the first monitoring project in Monterey County (Roberson 2012). The following year, the BLM's California Coastal National Monument took the project lead for the California central coast (Ceja et al. 2013).

In 2014, a citizen science effort was initiated under the auspices of Audubon California and the California Coastal National Monument (Ceja & Hanks 2014). The California Central Coast Black Oystercatcher Project is that initiative. The goal is to integrate this effort with some of the California Coastal National Monument partnership organizations operating in the Central Coast and use their volunteer, docent, intern, and/or naturalist programs to provide the local citizen science monitors within their select portion of the monitoring areas.

Also within 2014, the central coast Black Oystercatcher monitoring was conducted as part of the monitoring of the State of California's system of Marine Protected Areas within the central coast region. Five Marine Protected Areas (MPA) were selected -- four adjoining MPAs around the Monterey Peninsula and one MPA along the entire coastline of the Point Lobos State Natural Reserve, a unit of the California State Parks system. The Monterey Peninsula MPAs (from east to west) are the Edward F. Ricketts State Marine Conservation Area, Lovers Point-Julia Platt State Marine Reserve, Pacific Grove Marine Gardens State Marine Conservation Area, and the Asilomar State Marine Reserve. The Point Lobos State Marine Reserve is the MPA adjoining the coastline of the Point Lobos State Natural Reserve. In addition, the southern end of the Pebble Beach section at

Stillwater Cove is adjacent to the northern portion of the Carmel Bay State Marine Conservation Area.

In 2015, an increase in the number of citizen science monitors allowed the monitoring to expand to the Pebble Beach and Carmel-by-the-Sea sections of the Central Coast. This created a contiguous monitoring area from the northeastern city limits of Pacific Grove to the south end of Point Lobos State Natural Reserve.

Methods and Materials

The monitoring methodology used is based on the Black Oystercatcher standardized protocols for monitoring population size and reproductive success developed by the U.S. Geological Survey (Elliott-Smith & Haig 2011), with slight modifications adapted by Audubon California. The primary monitoring was conducted during the breeding season from March through September, but observations encompassed both pre- and post-breeding season in order to locate new territories and document survival after fledging.

Although the project is overseen by professional biologists from Audubon California and the California Coastal National Monument, it is currently operated almost exclusively as a citizen science effort using primarily BLM volunteers. The citizen science monitors included volunteers from the Pacific Grove Museum of Natural History's California Naturalists program and docents from the Point Lobos State Natural Reserve. For a third year, the project also used interns from the Environment for the Americas shorebird program for Latino youth (*Celebra las Aves Playeras*) to assist with the monitoring.



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Images 4 & 5. Citizen science BLOY monitors at Point Lobos SNR (left) and monitor at Pacific Grove, Monterey Peninsula (right).

In 2015, with an increased number of citizen science monitors was expanded to 30, the monitoring was expand to include Pebble Beach and Carmel-by-the-Sea sections of the Central Coast. This allowed for a contiguous monitoring area from the northeastern city limits of Pacific Grove to the south end of Point Lobos State Natural Reserve. All locations with public access where investigated for Black Oystercatcher territorial and nesting pairs and monitoring was conducted on all of these pairs.

Observations using binoculars and spotting scope from land were made in each Black Oystercatcher territory for a minimum of 30 to 60 minutes at least once a week during the breeding season, from March through September. Nests near suspected hatching dates or

with chicks, were monitored as frequently as two or three times a day for as much as a hour or more during each observation session.

Territory size was determined as a result of observations made of the individual pair's foraging distance, encounters with neighboring pairs, and distance of territorial chases of interloping oystercatchers. Google Earth™ was used to obtain GPS coordinates and to map observations of nest locations and territory size.

Study Sites

The 2015 study area covered a 25 km (15.5 mile) stretch of the California Central Coast from the eastern end of the City of Pacific Grove to the southern end of the Point Lobos State Natural Reserve in Monterey County, California. In this area, 35 pairs of Black Oystercatchers were monitored along 3 of 4 stretches -- Monterey Peninsula (Pacific

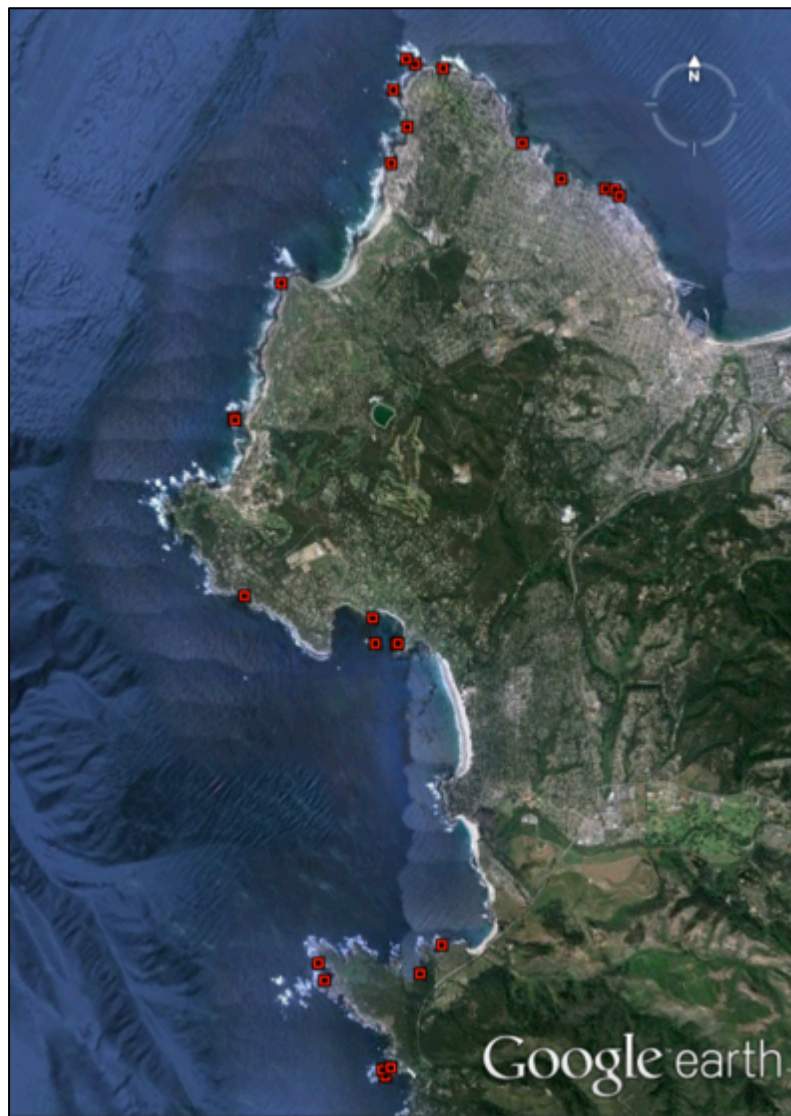


Image 6. Monterey Peninsula, Pebble Beach, Carmel Bay, and Point Lobos, from top to bottom, with known Black Oystercatcher nesting locations (red dots) monitored in 2015.

Grove) (n=12), Pebble Beach (n=12), and Point Lobos State Natural Reserve (n=11). The image below is a map of all the known Monterey Peninsula, Pebble Beach, and Point Lobos Black Oystercatcher nesting site locations for 2015. Attachment 1 provides a list of all the study area's Black Oystercatcher territorial pairs.

Monterey Peninsula. The Monterey Peninsula section refers to the rocky shoreline from the northeastern city limits of Pacific Grove to the southwestern portion of Asilomar State Beach. This covers a shoreline that is 5.5 km (3.4 mi.) long. A large majority of the Monterey Peninsula's immediate coastline area is in some form of public ownership. This stretch covers the entire coastline of the City of Pacific Grove, and the city owns most of the shoreline area on the ocean side of Ocean View Boulevard and Sunset Drive to Lighthouse Avenue. South of Lighthouse Avenue, most of the coastline is within Asilomar State Beach under the jurisdiction of California State Parks. Offshore of this stretch is the Monterey Bay National Marine Sanctuary, under the jurisdiction of the National Oceanic and Atmospheric Administration, while all the above mean high tide portions of the offshore rocks, islets, and exposed reefs are within the California Coastal National Monument, under the jurisdiction of the U.S. Bureau of Land Management. In addition, the entire section adjoins three California state marine protected areas – Lovers Point State Marine Reserve, from the northeastern end of the Pacific Grove city limits to Lovers Point; Pacific Grove Marine Gardens State Marine Conservation Area, from Lovers Point to Point Pinos; and Asilomar State Marine Reserve, from Point Pinos to Spanish Bay.

Within the Monterey Peninsula section, 11 of the 12 territorial pairs were known from previous years. The first 8 territorial pairs found were labeled in sequential order from the



Image 7. 2015 Monterey Peninsula Black Oystercatcher territories and nest location. Yellow polygons indicate nesting pairs and white polygons indicate known non-nesting pairs.

southwest end of Asilomar State Beach rocky shoreline to the northeastern end of the Pacific Grove city limits, and then all subsequent territories were labeled in the order they were discovered. A “MP” prefix was assigned to each Monterey Peninsula territory.

Pebble Beach. The Pebble Beach section covers the shoreline of Pebble Beach, from the southern portion of Spanish Bay, south to the southeastern side of Stillwater Cove. Unlike the Monterey Peninsula, the onshore portion of the entire Pebble Beach section is private land that is part of a gated community. The Pebble Beach Company charges a tourist fee for tourists driving along the 17-Mile Drive. Large coastal estates and private golf course limit access to a significant portion of this section. The complexity of the coast and private land ownership creates a limited number of accessible monitoring spots. The entire area is approximately 10 km (6.2 mi.) long, of which more than 3.0 km (1.9 mi.) are not accessible by foot. The offshore portion of the Pebble Beach section is within the Monterey Bay National Marine Sanctuary. The very northern portion from Point Joe north is within the southern end of Asilomar State Marine Reserve and the southern end of the section is within the very northern portion of Carmel Bay State Marine Conservation Area, while all the above mean high tide portions of the offshore rocks, islets, and exposed reefs are within the California Coastal National Monument.

Within the Pebble Beach section, 8 of the 11 territorial pairs were known from previous years. The first 8 territorial pairs found were labeled in sequential order from the southern end of Point Lobos State Reserve to the northeastern end of the Reserve, and then all subsequent territories were labeled in the order they were discovered. A “PB” prefix was assigned to each Pebble Beach territory.

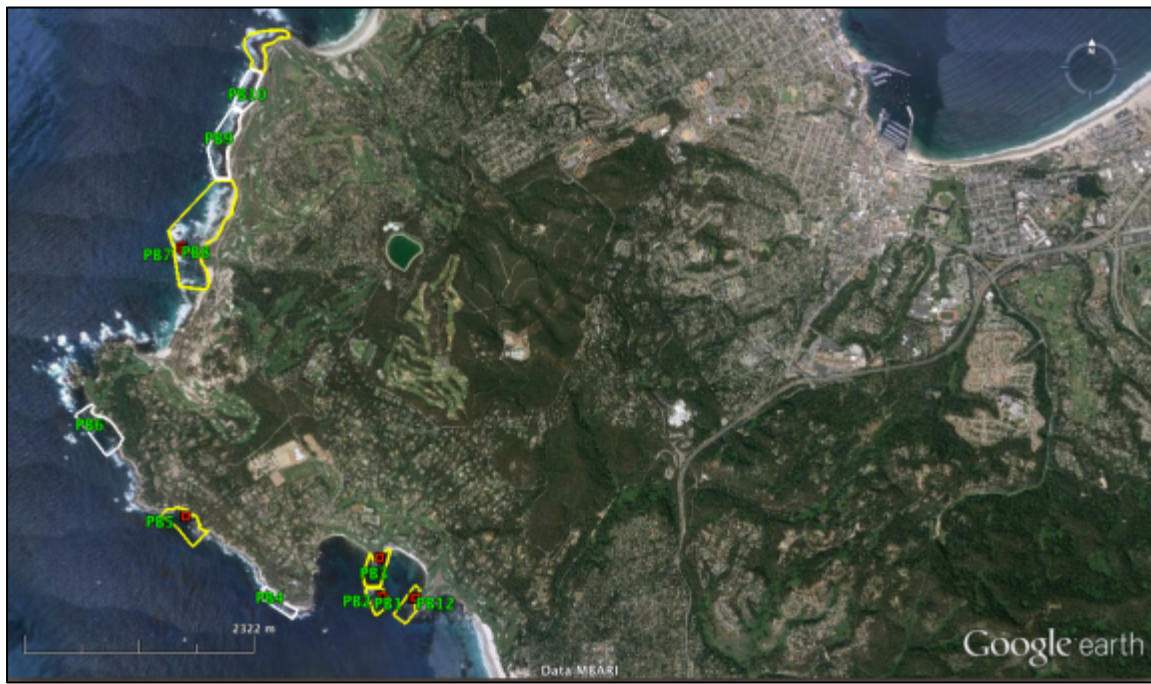


Image 8. 2015 Pebble Beach Black Oystercatcher territories and nest location. Yellow polygons indicate nesting pairs and white polygons indicate known non-nesting pairs.

Carmel Bay. The Carmel Bay section runs for 4.5 km (2.8 mi.) from the southwest corner of Pebble Beach to the northeast end of Point Lobos State Natural Reserve, with the village of Carmel-by-the-Sea on the northern portion and the Carmel River State Beach covering the southern portion. The entire offshore portion of the section is within the Monterey Bay National Marine Sanctuary and the Carmel Bay State Marine Conservation Area. This section had no identified nesting pairs. Only occasional Black Oystercatcher monitoring was conducted in this section since no territories have been discovered.

Point Lobos. The Point Lobos section covers the entire shoreline of the Point Lobos State Natural Reserve. Its rocky shoreline is approximately 5.0 km (3.1 mi.). The entire offshore portion of the Point Lobos is within the Monterey Bay National Marine Sanctuary and the Point Lobos State Marine Reserve. All of the above mean high tide portions of the offshore rocks, islets, and exposed reefs are part of the Point Lobos State Natural Reserve, the only state park unit in which all of the offshore rocks and islets are part of the California State Parks system.

The 8 territorial pairs discovered during the initial assessment were labeled in sequential order from south to north beginning with Bird Island. All subsequent territories were labeled in the order that they were discovered. A “PL” prefix was assigned to each Point Lobos territory.



Image 9. 2015 Point Lobos State Natural Reserve Black Oystercatcher territories and nest locations. Yellow polygons indicate nesting pairs and white polygons indicate known non-nesting pairs.

For 2015, the nesting sites for 12 of the 15 Monterey Peninsula BLOY nesting attempts and five of the 10 Pebble Beach nesting attempts were on the California Coastal National Monument.



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Images 10, 11, 12, 13, 14 & 15. Variation in nest material composition, location, and clutch size: MP1 (Gazebo) (top left); PB11 first attempt (Point Joe) (top right); MP5 (Point Pinos East) (middle left); MP11 (Asilomar) (middle right); MP1 (Hopkins North) (bottom left); and PB11 second attempt (Point Joe) (bottom right).

Results

Breeding Density. A total of 35 Black Oystercatcher pairs and territories were identified in the study area during the 2015 breeding season. Of the 35 pairs, 26 nested and 8 of the 26 re-nested. The Monterey Peninsula section had a total of 12 identified territorial pairs of which all but one pair nested, Pebble Beach (PB) had 12 territories of which eight pairs nested, and the Point Lobos section had 11 territories of which 7 pairs nested.

Timing of Breeding. For the 19 nesting pairs in the Monterey Peninsula and Point Lobo sections, egg laying began on 27 April. For the remaining 18 Monterey Peninsula and Point Lobos nesting pairs, the month of May had the highest number of

nesting pairs. The fourth week of May had the highest number of nesting pairs with six, followed by a combination of the first and second week of May with five nesting pairs, and lastly the first three weeks of June combined with four nesting pairs. The last egg laying took place on 5 August with a re-nesting attempt at Point Lobos, creating 102-day period in 2015 for egg laying for the Monterey Peninsula and Point Lobos sections.

Clutch Size. There were 26 nests and 8 re-nesting clutches, totaling 34 clutches of eggs. In 14 nests where the exact clutch size could be determined, there was a mean clutch size of 2.4 -- three eggs (n=7), two eggs (n=6), and one egg (n=1). As for the 8 re-nesting clutches, the exact clutch size could be determined for 3 nests, for a mean clutch size of 2.0 – 6 eggs (n=3). The mean clutch size for all 17 exact clutches was 2.35 -- three eggs (n=7), two eggs (n=9), and one egg (n=1). For of the 12 initial clutches and 5 re-nesting clutches whose exact nest content was not determined (The monitors were able to see and confidently say that some of the nests were composed of at least two eggs, but not confident enough to say that each had a full clutch, and for others it was assumed that these nests also had at least two eggs). As a result, these 17 nests were recorded as having a clutch of two eggs for an estimated mean clutch size of 2.0 – 34 eggs (n=17). The total estimated mean clutch size for all 34 clutches (exact and estimated egg counts) is 2.18 -- three eggs (n=7), two eggs (n=26), and one egg (n=1).

Fledgling Success. Of the 29 breeding pairs monitored, there were a total of 5 observed fledglings -- (MP7-Hopkins West (n=2), PL7-Whalers Cove (n=1), PB8-Bird Rock North (n=1), and PB12-Stillwater Cove East (n=1)). Overall, the Central Coast had a reproductive success (# of fledglings / # of breeding pairs) of 17.3%, a nesting success (# of clutches that produced young / # of clutches) of 40.0%, a hatching success (# of chicks / # of eggs) of 33.8%, and a survival to fledgling (# of chicks fledged / # of chicks hatched) of 20.0%. Individually, the Monterey Peninsula had a reproductive success of 18.2%, Pebble Beach had a reproductive success of 18.2%, and Point Lobos had a reproductive success of 14.3%.

2015 BLOY Reproductive Success							
Site	# of Eggs	# of Chicks	# of Fledglings	# of Breeding Pairs	Hatching Success (Chicks/Eggs)	Egg to Fledgling Success (Fledged/Eggs)	Fledgling Success (Fledged/Pairs)
MP	33	12	2	11	36.4%	6.1%	18.2%
PB	22	6	2	11	27.3%	9.1%	18.2%
PL	19	7	1	7	36.8%	5.3%	14.3%
MP+PB+PL	74	25	5	29	33.8%	6.8%	17.3%

Table 1: Black Oystercatcher productivity in the California Central Coast (MP=Monterey Peninsula, PB=Pebble Beach, and PL=Point Lobos).



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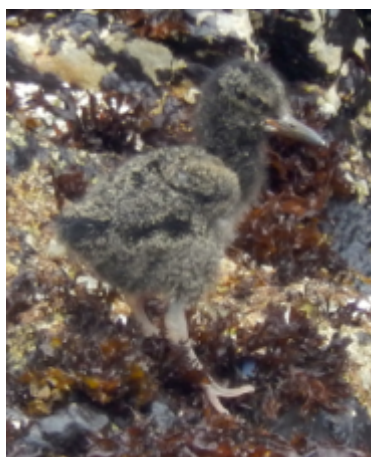


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Image 16, 17, 18 & 19. MP6 (13th Street) pair preparing for incubation exchange shortly following the hatching of the first of three chicks (top left); MP6 male leaving nest and female moving to the nest with the first hatched chick (bottom left); MP6 BLOY parent helping with hatching of the second chick and grabbing the shell to fly it from the nest (upper right); and MP6 adult BLOY flying eggshell off of nest immediately after lifting the shell and dumping chick onto the nest (bottom right). The adult flew to a low offshore rock, landed, and dumped the eggshell into the ocean.



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Images 20 & 21. MP5 chick only a few days old (left) and MP8 chick about a week old (right).

Disturbance

The study area receives a large amount of visitors on a daily basis year-round. As a result BLOY in the study area are susceptible to direct or indirect human disturbance. In addition, the BLOY are subject to a wide variety of natural disturbance, ranging from inclement weather and high surf to various forms of suspected natural predation, including both diurnal and nocturnal avian threats (e.g., corvids, herons, and raptors) and terrestrial mammals (e.g., raccoons, ground squirrels, and coyotes).



Images 22, 23 & 24. Known local avian predators – Peregrine Falcon at China Cove on the Point Lobos SNR (left); Red-Shouldered Hawk at Hopkins Marine Station (center); and Great Blue Heron at Whalers Cove, Point Lobos SNR (right).

The following is a brief discussion of the specific threats noted for each of the three monitored sections during the 2015 Black Oystercatcher breeding season:

Monterey Peninsula. The Monterey Peninsula from Hopkins Marine Station to Asilomar State Beach is a section that receives a larger amount of visitor impact on a daily basis year-round. Of the 16 Monterey Peninsula Black Oystercatcher nesting sites in 2015, only MP7 (Hopkins West) was comparatively safe from most daily human disturbance. This site was located on a remote portion of Stanford University’s Hopkins Marine Station (HMS) that is fenced and closed to the general public. The closed Harbor Seal haul-out and pupping beach located below and just to the southeast of the MP7 nesting site also provided an added layer of protection. Despite the fact that the MP7 nesting site was onshore, the MP7 pair has produced four fledglings within the last two years, more than any other pair within the entire study area.

The other three Black Oystercatcher nesting sites in Hopkins Marine Station, MP8 (Hopkins East) and MP10 and MP10.2 (Hopkins North), were exposed to human activity by Hopkins Marine Station staff, students, and authorized visitors. The shell-covered beach was also exposed to high tides. On at least one occasion, the MP10 pair was forced to move its eggs more than a meter back from the high tideline (Images 41 and 42).



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Images 25 & 26. Eastern portion of the MP7 (Hopkins West) BLOY territory with the nesting site on top of the granitic ridge in the middle of the point in the center of photo (left) and an interloping BLOY pair standing in alert on a mussel bed covered rock in the MP7 territory (right). The interloping pair failed in a two month-long attempt to take over the MP7 territory, but they did cause enough of a disturbance to result in the MP7 fledglings leaving the MP7 territory within less than a month after fledging.

The remaining eleven nesting sites along the Monterey Peninsula section were subject to human disturbance, especially during low tide. The most likely cause of disturbance is people climbing on or walking near the rocks containing the nest sites. Indirect human threat includes people with dogs, and dogs off-leash. Additionally, every Monterey Peninsula Black Oystercatcher territory is subject to its own unique set of challenges, such as access to the nesting site during low or extreme low tides or located on a cliff face near a trail where people ride bikes, run, and walk their dogs.

At Point Pinos, not only did there appear to be a continual increase of roosting Brandt's Cormorants and Brown Pelicans on the MP4 (Point Pinos West) nesting sites, there appeared to be a similar increase on a section of MP5 (Point Pinos East) where the Black Oystercatcher pair roosted and foraged with their chicks. The increase in cormorants and pelicans roosting appears to have been felt the hardest at MP2 (Gull Rock West) where the Brandt's Cormorant and Brown Pelican roosting appears to have caused the failure of the MP2 pairs first and second nesting attempts, forcing the MP2 pair to move off Gull Rock West and attempt an usual third nesting attempt on Gull Rock East, which also failed. Increased cormorant and pelican roosting during the Black Oystercatcher breeding season may have also been a factor in the MP1 (Gazebo Rock) pairs decision to move their nesting site off Gazebo Rock and onto their 2015 nesting site next to the shoreline.

Point Lobos. Like the Monterey Peninsula, the Point Lobos State Natural Reserve receives a large amount of year-round visitors. However, dogs are not allowed in the Point Lobos State Natural Reserve and Point Lobos visitors generally follow the rules for the Reserve. In addition, most of the current Black Oystercatcher nesting areas are not accessible to foot traffic. On the Reserve, the Black Oystercatcher eggs and chicks were more likely to be directly disturbed by avian predators than by humans. The PL7 (Whalers Cove) pair was observed being regularly harassed by Great Blue Herons foraging in the area of the nesting site. A pair of Peregrine Falcons regularly cruised the Bird Island area. The Reserve also provides an ideal habitat for other raptors, including Red-Shouldered Hawks and Great Horned Owls.

At Weston Cove, people inadvertently get close to foraging Black Oystercatchers in a foraging situation. The great abundance of Black Oystercatcher foraging resources (e.g., more than a dozen species of limpets) in this extremely productive rocky intertidal habitat may play a major part in the Black Oystercatchers tolerance for human disturbance in this particular cove.



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Image 27. Park visitor walking on exposed reef with MP3 BLOY standing nearby, Point Lobos SNR.

Pebble Beach. Like the Monterey Peninsula and Point Lobos sections, the Pebble Beach section also receives heavy of visitor use. But unlike the Monterey Peninsula and more like Point Lobos, Pebble Beach has controlled visitor entry. The Pebble Beach coastline is in private ownership by the Pebble Beach Company.



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Image 28. The location of PB3 (Stillwater Cove West) nesting site on sandstone outcropping below a golf green on the Pebble Beach Links (See arrow for nesting site location).

Of the 10 nesting attempts in 2015 on Pebble Beach, two nesting sites were accessible to potential foot traffic. The first nest was near a golf course that was under reconstruction with heavy equipment at the time of nesting. The disturbance may have caused failure of

the first nest and resulted in a second nesting 50 meters south. This second nesting site was exposed to disturbance from a variety of anthropogenic (e.g., human foot traffic), biologic (e.g., terrestrial mammalian predators), and physical (e.g., high surf) factors.

Although many of the remaining eight nesting sites were in areas subject to either exposure to large numbers of tourists or below golf greens, the nests themselves are not readily accessible to the public. The two nesting sites on Bird Rock are in locations heavily occupied by nesting and roosting Brandt's Cormorants and by California Sea Lions. Both Black Oystercatcher pairs (PB7-Bird Rock South and PB8-Bird Rock North) were able to find nesting site locations out of the way of most of the cormorant activities, but only the PB8 nesting site was in a location away from sea lion access, and it was less exposed to cormorant activity than PB7.



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Image 29. *Visitors with dog near MP5 nesting site at Point Pinos, California Coastal National Monument, Monterey Peninsula.*



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Image 30. *Human activity above MP6 BLOY nesting site during MP6 chick hatching ((See BLOY on nest in lower left portion of photo and other in alert sentinel position in the middle of the left side of the photo).*

Human Control Measures

In an attempt to minimize stress on nesting Black Oystercatchers, six of these nesting sites were roped-off and signed. As a result, the majority of the people utilizing the areas respected the ropes and signs. At MP1 (Gazebo) State Parks placed sawhorses with signs at five stairways and strung a rope with signs across the small beach in order to prevent access to the nesting site rock and minimize disturbance.

In the spring of 2015, Daniel Gómez, an Environment for the Americas shorebird project intern, conducted a study, in cooperation with and under the guidance of the authors of this report, on quantifying the effectiveness of ropes and signs in decreasing human disturbance on Black Oystercatcher nesting sites on the Point Pinos Islet (Gómez 2015). In his report, he concluded that:

Overall, the ropes and warning signs placed in the BLOY nesting sites at Point Pinos...were effective in decreasing the amount of foot traffic during the spring of 2015. Before the protective measures were placed, 355 entries were recorded in the Islet area. From those 355 entries, 16.6% continued on to enter the MP-4 Nesting Site, while 26.2% continued on to enter the MP-5 Nesting Site. After the protective measures were placed, 205 entries were recorded in the Islet area. From those 205 entries, 0% continued on to the MP-4 Nesting Site, while only 3.4% continued on to the MP-5 Nesting Site.

Gómez (2015) also eludes that ropes and signs decrease the amount of foot traffic in the Point Pinos study area, it does not mean that disturbance to Black Oystercatcher nesting success will decrease. Black Oystercatchers have a wide variety of avian and terrestrial predators that could be the cause of many of the nest failures and it is almost impossible to pinpoint a single cause without direct observations that document the cause of the nest failures.



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Images 31 & 32. Rope & sign around MP5 (Point Pinos East) nesting site (left) and sign used on select California Coastal National Monument BLOY nesting sites (right).



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Images 33 & 34. State Parks sign on rope across beach area near MP1 (Gazebo) nesting site (left) and one of the stairway access closures to the MP1 nesting site on the rock in the background (right).



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Image 35. Rope and sign around MP4 (Point Pinos West) nesting rocks, California Coastal National Monument, Monterey Peninsula.



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Image 36. Kids from a visiting Philadelphia family climbing on Gull Rock West (MP2) during an extreme low tide. The portion of Gull Rock West above mean high tide is also part of the California Coastal National Monument, Monterey Peninsula.

Discussion

For the 2015 breeding season, the California Central Coast Black Oystercatcher Project monitored 35 territorial pairs in the Monterey Peninsula (n=12), Point Lobos (n=11), and Pebble Beach (n=12) sections of the study area. Of the 35 territorial pairs, 26 pairs nested (Monterey Peninsula, n=11; Pebble Beach, n=8; and Point Lobos, n=7). In addition, there were 8 replacement clutches, for a total of 34 nests monitored. From the 34 nesting attempts, there were 74 observed and suspected eggs of which 25 hatched chicks, and 5 chicks fledged (i.e., capable of flight). The study area as a whole had a fledging success (# of fledglings / # of eggs) of 6.8% (0.19 per pair, n=26) -- Monterey Peninsula 6.1% (0.18 per pair, n=11); Pebble Beach 9.1% (0.25 per pair, n=8); and Point Lobos 5.3% (0.14 per pair, n=7). This is at the low end of the Black Oystercatcher breeding success rate. The 2015 monitoring results are only the second year of comparable data, but if the current observations are an indication of the population trend for the study area, the area's Black Oystercatcher population appears to be breeding below replacement level.

The Monterey Peninsula section had a total of 12 pairs of which only one pair (MP3) did not nest. The non-nesting pair was seen rock tossing, copulating, and making nest scrapes, but then no further nesting attempts were made. This section also had the highest number of replacement clutches, four of the eight compared to two for Point Lobos and two for Pebble Beach. On a daily basis the Monterey Peninsula section has a high volume of visitor use and has a very accessible coast. This appears to have a negative effect on the Black Oystercatchers nesting.

The Point Lobos section had 11 territories of which 7 pairs nested. It is suspected that 4 of the Point Lobos pairs that did not nest could have attempted to nest, but the nesting may not have been identified due to the complexity of the coast and the location of the nest. Those BLOYs were observed in their respective territories before the breeding season, but some were absent from the foraging areas during the peak of nesting. This present and absent pattern possibly indicates nesting and failing. Due to this uncertainty and not having a visual confirmation, they were counted as "non-nesting."

It is suspected that the reason for the early nesting during the latter part of April had to do with the age and experience of the nesting pairs, as well as the fact that the areas of both nesting sites have little to no human disturbance.

Additional Observations

Fledgling Survival. As for the fledglings, based on the observations that were made towards the end of the breeding season, the two fledglings from Monterey Peninsula (MP7) were seen foraging and moving southwest away from their natal site on 12 August. In the days that followed, they crossed eight territories and settled between MP1 and MP11 territories for a few weeks. The fledgling pair was last seen in the northern portion of the MP11 territory on 29 August foraging for small limpets along the rocky shoreline of Asilomar State Beach. It was speculated that the reason why the two fledglings abandoned the parent's territory so soon after fledging was due to the arrival of a pair of Black Oystercatcher interlopers that were intent on claiming the area between

MP7 and MP6. As a result, the MP7 parents were constantly defending their territory and dedicated little to no time to the fledglings. Several observations were made of an interloper landing on MP7 nesting rock and having aggressive physical contact with one of the MP7 territorial Black Oystercatcher pair. At least two months of daily squabble between the two pairs of adult Black Oystercatchers was observed within the western portion of the MP7 territory and within the very eastern portion of the MP6 territory. The MP7 territorial pair finally prevailed, but it was some time during the middle of the squabble that the pair of MP7 fledglings left their partners.

On the other hand, the Point Lobos fledgling (PL7) was regularly seen with the parents foraging and resting through January 2016. On 5 February the PL7 pair was observed attempting to chase their fledgling out of their territory and on 16 February the PL7 fledgling was by itself in Whalers Cove. Lastly, the PB12 (Stillwater Cove North) fledgling was not monitored after the end of the breeding season. This was due to the situation that it was very difficult to locate the PL7 fledgling from the observation point. This was further complicated by the fact that the fledgling and parents would regularly forage a kilometer (0.62 miles) away from the nesting site on the cliff at Arrowhead Point by flying across Stillwater Cove to their foraging site on the end of Pebble Beach Point.



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H.J. Ceja

Images 37 & 38. *PL7 (Whalers Cove) fledgling, Point Lobos SNR (left), and MP7 (Hopkins West) fledglings days after leaving natal site, Monterey Peninsula (right).*

Sub-Adults in Weston Cove. In 2015, two sub-adult Black Oystercatchers were regularly observed foraging in Point Lobos' Weston Cove where PL4 and PL3 territories meet, and occasionally within the PL4 territory. Based on the large amount of black on the tip of the beak and the combination of new and old worn-out first-year feathers, one of the sub-adults was a second-year Black Oystercatcher. This young Black Oystercatcher was most likely the 2014 offspring of the PL2 pair, since this bird was regularly observed foraging and resting in Weston Cove after the PL2 pair chased it out of their territory before the beginning of the 2015 breeding season. It is also based on the fact that the PL2 pair was the only pair in the southern portion of the Point Lobos that successfully fledged a bird in 2014 and the pair regularly left their territory with their 2014 fledgling to forage in Weston Cove. In addition, at various times in 2015, another sub-adult Black Oystercatcher, about 3 years old, was observed foraging in Weston Cove and to the north in PL4's territory. This sub-adult had a less obvious black beak tip and

its full adult plumage. It is believed that this sub-adult may be the 2013 offspring of the PL2 pair.



Images 39 & 40. *PL2 sub-adult foraging along Weston Cove shoreline, Point Lobos SNR (left), and the banded female BLOY observed for second year in a row around the Monterey Peninsula (right).*

Banded BLOY. An unattached adult female Black Oystercatcher, banded as a chick in July of 2011 on the Farallon National Wildlife Refuge (located 30 miles west of the Golden Gate Bridge), and first reported on the Monterey Peninsula in 2014, was sighted during the spring and summer of 2015 moving around the Monterey Peninsula section and as far south as the northern end of the Pebble Beach section. This bird has a light blue (turquoise) band on the right leg and a black band above a silver band on the left leg.

Two Beach-Nesting Pairs. Two of the 26 nesting pairs nested on the beach, as oppose to the other 24 pairs that nested on a cliff or rock. Those that nested on the beach eventually failed. One of the beach-nesting pairs (MP10–Hopkins North) tried twice, with one of the nests being almost destroyed by a high tide. The other beach-nesting pair (PB11-Point Joe) was believed to have failed due to human disturbance.



Images 41 & 42. *Original location of first two eggs on first nesting attempt by the MP10 (Hopkins North) BLOY pair on the shell-covered beach (left) before moved eggs back about 1½ meters for a final clutch of three eggs (right). This first nesting attempt hatched two chicks. A second nesting attempt also failed, Monterey Peninsula.*

New Monterey Peninsula & Point Lobos Nesting Attempts. In addition to adding the 12 Pebble Beach Black Oystercatcher territories and the various nesting sites

to the database in 2015, a handful of first time monitoring of nesting attempts were also included for both the Monterey Peninsula and Point Lobos. These were as follows:

MP 10 (Hopkins North) – Nested for the first time after at least a full year of defending their territory that was carved out of the west side of the MP8 (Hopkins East) territory and the northeastern portion of MP7 (Hopkins West). Attempted to nest twice on the shell-covered beach, failing both times.

MP11 (Asilomar North) - After two years of defending their territory along a heavily visited portion of the rocky shoreline in the northern portion of Asilomar State Beach, the MP11 pair finally attempted to nest on the southeast side of a low rock in the middle of the northern portion of their territory. Unfortunately, after laying two eggs, the nest failed when a late season storm surf hit the area and splashed the nesting site.

MP12 (Crespi Cove) – The new pair was observed in the spring of 2015 moving into the east end of the MP5 territory off Crespi Pond and keeping the MP5 pair out. The MP12 pair set-up a nest on a large rock on the east side of Crespi Cove, but the nest failed shortly after two eggs were laid.

PL8 (Moss Cove) – Although no nest site could be found for this pair in 2014, a nesting site was found in 2015. This nesting site was located on an onshore granitic outcrop near the top of the shoreline cliff to the east of Moss Cove. After laying three eggs, the nest failed.

PL9 (Middle Rock North) – Although there were indications that the PL9 pair may have attempted to nest in 2014, they were observed during that year vigorously defending their territory, a territory that appears to have been carved out of the once adjoining PL2 (Bird Island NE) and PL3 (China Cove/Weston South) territories. In 2015, however, the PL9 pair had at least one chick from a nest located across from Middle Rock North on the lower portion of the cliff at the northern end of Pelican Point. Unfortunately, the nest failed.

PL11 (Headland North) – Although no nest could be located in 2014, the pair was seen nesting in 2015 high on the cliff face on the north side of Headland Cove. This was the highest Black Oystercatcher nest site on Point Lobos and may be the highest of all the 26 nest sites monitored in the Monterey Peninsula, Pebble Beach, and Point Lobos sections in 2015. Unfortunately, this nest also failed.

Territory Switches. Between 2014 and 2015 season, the MP3 (Gull Rock East) pair switched its territory from the north side of MP2 (Gull Rock West) to the south side of the MP2 territory, creating a very small territory for themselves. This allowed the MP2 pair to expand back into the area around Gull Rock East, the area of the MP3 territory that appears to have originally been carved out of the northern end of MP2 and the southern end of MP4 (Point Pinos West). In their new territory, the MP3 pair did not attempt to nest, while the MP2 pair attempted and failed three times, twice on Gull Rock West and a third attempt on Gull Rock East, the nesting rock that belonged to MP3 in 2014.

Nesting Site Switch. For the past three years of monitoring, the MP1 (Gazebo) pair nested on Gazebo Rock. In 2015, however, the MP1 pair moved their nesting site to a location on a low rock that is connected to the shoreline at low tides. After three eggs and two chicks, the nest failed. What triggered the move from Gazebo Rock to the shoreline nest site is unknown.



H.E. Hanks

Image 43. MP3 pair sitting about 2½ meters apart in lower half of left side of photo, Monterey Peninsula.

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H.J. Ceja

Image 44. PL7 (Whalers Cove) parents leading fledgling to a foraging site, Point Lobos SNR.

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ATTACHMENT 1

California Central Coast Black Oystercatcher Monitoring Project

Territorial Pairs 2015

<u>Ref. #</u>	<u>Territory Name</u>	<u>Monitoring Section</u>
MP1	Gazebo	Monterey Peninsula
MP2	Gull Rock West	Monterey Peninsula
MP3	Gull Rock East/Barnacle Rock	Monterey Peninsula
MP4	Point Pinos West	Monterey Peninsula
MP5	Point Pinos East	Monterey Peninsula
MP6	13 th Street	Monterey Peninsula
MP7	Hopkins West	Monterey Peninsula
MP8	Hopkins East	Monterey Peninsula
MP9	Lover Point West (Oak Rock)	Monterey Peninsula
MP10	Hopkins North	Monterey Peninsula
MP11	Asilomar	Monterey Peninsula
MP12	Crespi Cove	Monterey Peninsula
PL1	Bird Island SE	Point Lobos
PL2	Bird Island NE	Point Lobos
PL3	China Cove/Weston South	Point Lobos
PL4	Sand Hill Cove/Weston North	Point Lobos
PL5	Sea Lion Cove	Point Lobos
PL6	Headland Cove South	Point Lobos
PL7	Whalers Cove	Point Lobos
PL8	Moss Cove	Point Lobos
PL9	Middle Rock North	Point Lobos
PL10	Cypress Cove	Point Lobos
PL11	Headland Cove North	Point Lobos
PB1	Stillwater Cove East	Pebble Beach
PB2	Stillwater Cove South	Pebble Beach
PB3	Stillwater Cove West	Pebble Beach
PB4	Ghost Tree (Stillwell Point)	Pebble Beach
PB5	Lone Cypress	Pebble Beach
PB6	Cypress Point Lookout	Pebble Beach
PB7	Bird Rock South	Pebble Beach
PB9	Ocean Road	Pebble Beach
PB10	China Rock South	Pebble Beach
PB11	Point Joe	Pebble Beach
PB12	Stillwater Cove North	Pebble Beach