

**Black Oystercatcher (*Haematopus bachmani*)
2014 Reproductive Success Monitoring
Monterey Peninsula and Point Lobos
California Central Coast**



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Executive Summary

During the 2014 season of the California Central Coast Black Oystercatcher Monitoring Project, 22 Black Oystercatcher territorial pairs were monitored: 11 territorial pairs on the Point Lobos State Reserve and 11 territorial pairs on the Monterey Peninsula from Hopkins Marine Station to Asilomar State Beach. Breeding season monitoring was conducted from March through September. Out of the known 22 pairs, only 15 pairs nested: six pairs on the Point Lobos State Reserve and nine pairs on the Monterey Peninsula. Egg laying started as early as 3 May and covered a total of eight weeks. The Point Lobos pairs produced from 17-20 eggs, including re-nesting attempts, hatched 12 chicks, and fledged six birds. The Point Lobos pairs alone had a fledging success (# of fledglings / # of eggs) of 30-35%. The Monterey Peninsula pairs produced from 25-33 eggs, including re-nesting attempts, hatched nine chicks, and fledged two birds. The Monterey Peninsula pairs had a fledging success of 6-8%. Overall, 22 territories were monitored, 15 nesting pairs were identified, 42-53 eggs were laid, 21 chicks hatched, and eight chicks fledged. The Central Coast monitoring area as a whole had a fledging success of 15-19%. By the end of September, however, five of the eight fledglings were no longer with the parents. It is not known if their absence is related to death or if the fledglings temporarily or prematurely left the parents.



Image 1: *PL-3 adult Black Oystercatcher (BLOY) on the right confronting PL-2 adult on the left while PL-2 fledgling hunkers down in alert status. The BLOYS are on the wrack in the middle of Weston Cove, Point Lobos.*

Throughout the breeding season and again in the late fall, a second-year female Black Oystercatcher was observed regularly at Point Lobos foraging in the wrack in Weston Cove between the two territories of the PL-3 and PL-4 pairs. In early fall, that sub-adult female was pushed out of Weston Cove by the PL-2 pair from the northeast end of Bird

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Island in order to provide a new foraging area for themselves and their late season fledgling. On the Monterey Peninsula, one banded unattached female Black Oystercatcher (banded as a chick in 2011 on the Farallon National Wildlife Refuge) was observed first in mid-winter and then at various times in early fall.

Also during the 2014 season, the authors had the opportunity to assess a unique Black Oystercatcher nesting situation on Pescadero Rock, a small islet just off Pescadero State Beach along the San Mateo County coast. Seven Black Oystercatcher pairs were observed nesting within a 40 square meter area in a virtual Black Oystercatcher “apartment complex,” with each pair foraging in relatively narrow territories. A total of seven fledglings were observed on the rock, a total that is almost equal to the total number of fledglings from both the Monterey Peninsula and Point Lobos combined.

The following recommendations were provided: (1) At a minimum, continue monitoring the success of Black Oystercatcher reproduction for the 22 territorial pairs on the Monterey Peninsula and Point Lobos; (2) Monitor Black Oystercatcher fledglings for at least two months after fledging; (3) Investigate how the Black Oystercatcher monitoring data collected associated with specific State Marine Protected Areas can be integrated with other monitoring data being collected (i.e., rocky intertidal and human activities) for the same State Marine Protected Areas; (4) Before nesting begins, continue roping-off and signing each nesting site vulnerable to impacts from human foot traffic; (5) Convert Audubon California’s Black Oystercatcher fact sheet into an information card and/or a brochure for use in outreach during monitoring; and (6) Consider formal closure to public access at select nesting sites on the California Coastal National Monument portion of the monitoring area.



Image 2: *PL-3 pair (left) confronting an interloper at the northern boundary of the PL-3 territory in the middle of Weston Cove, Point Lobos.*

Background

The central coast project for monitoring the success of Black Oystercatcher reproduction is part of a California coast-wide, multi-year effort to assess the Black Oystercatcher reproduction success, as well as 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 (*Haematopus bachmani*). This is an effort coordinated by Audubon California in partnership with the US Fish & Wildlife Service (USFWS) and in conjunction with the US Bureau of Land Management's California Coastal National Monument. The Black Oystercatcher is a USFWS “Species of Concern” because of its small population size and restricted range and threats to its habitat from human and natural factors.

The coast-wide effort began in 2011 with a targeted survey to measure the distribution and abundance of the Black Oystercatcher along the California coast (Weinstein et al. 2014). In 2012, the reproduction monitoring portion of the project was initiated in California's central, north central, and north coast areas. Along the central coast area in 2012, the effort was focused along the Monterey County coast (Roberson 2012). In the central coast area in 2013, monitoring was conducted only at six sites (MP-1, 2, 3, 4, 5 & 6) on the Monterey Peninsula (Ceja et al. 2013).

For 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 Reserve, a unit of the California State Parks. The Monterey Peninsula Marine Protected Areas (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 Marine Protected Area is the Point Lobos State Marine Reserve.



Image 3: *PL-6 fledgling getting food from parent on the wrack at Headland Cove, Point Lobos.*

One of the primary reasons the Marine Protected Areas listed above were selected for monitoring was because they provided the opportunity to compare two somewhat similar areas -- the Monterey Peninsula and Point Lobos -- with two different levels of public access. The Monterey Peninsula monitoring locations are all located along the coastline of the City of Pacific Grove and all the offshore rocks are part of the California Coastal National Monument. The Point Lobos monitoring locations are all located within the boundary of the Point Lobos State Reserve managed by California State Parks. Both areas receive heavy visitor use, including a large number of statewide, nationwide, and international tourists, and both areas are within relatively close proximity to each other. The Monterey Peninsula, however, represents an established residential area, whereas Point Lobos is a state reserve, the most protected unit designation of the California State Parks system.

In order to help ensure that a minimum five-year set of comparable monitoring data are collected (a ten-year or more data set is the ideal attempt) for both the Monterey Peninsula and Point Lobos, a citizen science effort has been initiated under the auspices of Audubon California and the California Coastal National Monument. The California Central Coast Black Oystercatcher Monitoring Project is that initiative. The project is overseen by professionals in both Audubon California and the California Coastal National Monument, but it is currently operated almost exclusively as a citizen science effort using primarily Bureau of Land Management volunteers. The goal is to integrate this effort with some of the California Coastal National Monument partnership organizations operating in the Central Coast and using their volunteer, docent, or naturalist programs and intern programs as the local citizen science monitors in their select portion of the monitoring areas. For the second year, the project also used interns from the Environment for the Americas shorebird program for Latino youth (*Celebra las Playeras*) to assist with the monitoring.



Image 4: PL-3 (top left) and PL-4 (bottom right) BLOY pairs meeting at the boundary between their respective territories at Weston Cove, Point Lobos.

Methods

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

Observations were made in each territory using binoculars and spotting scopes from land for a minimum of 30 to 60 minutes once a week and sometimes twice a week or more during critical periods such as egg laying, near hatching, and fledging. A cadre of trained “citizen science” volunteers assisted with the monitoring at least once a week to maximize observations. Territory size was determined as a result of observations made of the individual pair’s foraging distances, as well as watching where the territorial pairs

chased interloping oystercatchers out from their respective territory. Google Earth™ was used to obtain GPS coordinates on nests and to display territory size.



Images 5 & 6: Citizen science monitoring of PL-7 BLOs at Whaler’s Cove, Point Lobos (left), and The MP-6 pair at 13th Street site, Pacific Grove, Monterey Peninsula (right).

The Monterey Peninsula section refers to the rocky shoreline from the northeastern city limits of Pacific Grove (located between the west side of the Monterey Bay Aquarium and the east side of Stanford University’s Hopkins Marine Station) to the southwestern portion of Asilomar State Beach. This covers a shoreline that is roughly 5.5 kilometers (3.25 mi.) long. Six of the 11 territorial pairs in the area were already known from previous seasons. Territorial pairs were identified in the order they were encountered from Asilomar to the northeastern Pacific Grove city limits. An “MP” prefix was assigned to each Monterey Peninsula territory (See Image 8).

The Point Lobos section covered the entire shoreline of the Point Lobos State Reserve. Its rocky shoreline is roughly five kilometers (3 miles) from one side of the state reserve boundary to the other. Prior to the breeding season, the shoreline was surveyed on foot to find territorial pairs utilizing available habitat. No previous history of nesting Black Oystercatchers was available, with the exception of some anecdotal information from Point Lobos State Reserve docents and one specific location that docents were aware of from monitoring the previous season. The territorial pairs were numbered (from south to north) in the order they were encountered starting with Bird Island. A “PL” prefix was assigned to each Point Lobos territory (See Image 9).

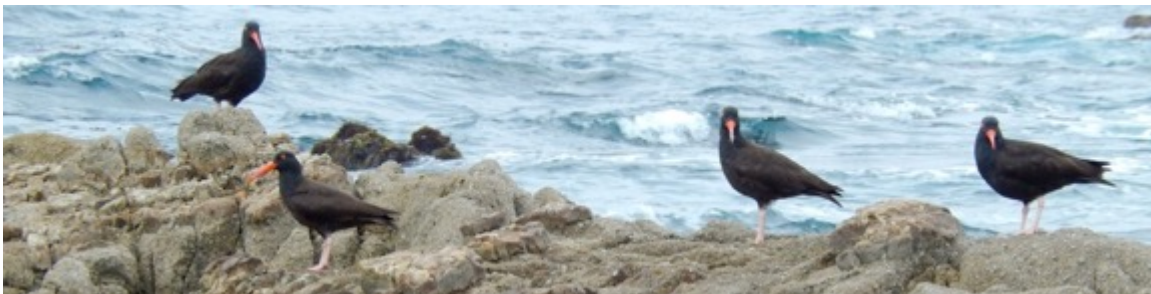


Image 7: Four BLO interlopers in the MP-5 territory, Monterey Peninsula.



Image 8: Monterey Peninsula BLOY territories (white lines) and nesting sites (each marked with an alpha-numeric designation) associated with (from east to west) 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.



Image 9: Point Lobos BLOY territories (white lines) and nest sites (each marked with an alpha-numeric designation) within the Point Lobos State Reserve and associated with the Point Lobos State Marine Reserve.

Breeding Density

A total of 22 Black Oystercatcher territorial pairs and territories were identified in the Point Lobos and Monterey Peninsula portions of the central coast during the 2014 breeding season. Point Lobos had a 54% nesting success for their eleven pairs, while the Monterey Peninsula had an 82% nesting success for their eleven pairs. Combined, 68% of 22 territorial pairs nested and 32% did not nest. All pairs throughout the breeding season were observed defending their territory.



Image 10: *BLOY territorial pair MP-8 on the eastern side of Hopkins Marine Station.*

The reasons for not nesting are unknown. Some non-nesting pairs did, however, show signs of nesting attempts, such as tossing rocks and copulating. If a non-nesting pair actually attempted to nest, it could have been an early nesting failure that did not allow time for observers to identify the nest or the nest might have been in a secluded location out of sight of any of the observers. At least a couple of the pairs (e.g., MP-11 & PL-9) may have been relatively new pairs that were spending much of their time defending a newly established territory. Other factors such as the complexity of the shoreline, limited observer access to certain territories, and the lack of previous nesting history may also have contributed to the limited data gathered for some territories. The Monterey Peninsula has more nesting history than Point Lobos, and the shoreline is less extreme, thus allowing for a better representation of the breeding season. With almost no previous nesting history, it is hard to interpret whether or not the low nesting to territorial pairs ration at Point Lobos is associated factors such as predation or newly established territories. Only long-term monitoring will provide the needed data.

Timing of Breeding

Egg laying began as early as 3 May for three pairs in the central coast: two at Point Lobos and one on the Monterey Peninsula. By the end of the third week of May, nine of the 14 initial nesting pairs observed had started or completed their clutch. By the fourth week of May, 11 of the 14 observed nesting pairs had already started incubating their clutch. Due to being discovered late in the season, the Cypress Cove (PL-10) pair was not included

with the 14 nesting pairs discussed here regarding egg laying, but it would likely be a strong candidate for nesting early in the season due to having a high fledging success. Two additional pairs completed their clutch by the first week of June. The last clutch of two eggs started on 17 June by a Monterey Peninsula pair (MP-8) nesting on Hopkins Marine Station, where three pairs maintained territories along an area of approximately 0.30 km (0.18 mi.). Overall, egg laying covered a period of eight weeks, from 3 May to 17 June. Replacement clutches started as early as 10 June and as late as 17 July. There were a total of five re-nesting attempts with only one pair (PL-2) successfully hatching all three eggs and fledging one bird.



Image 11: Couple walking on path near MP-5 nesting site (see BLOY on nest in lower right) on Point Pinos islet, Monterey Peninsula.

Clutch Size

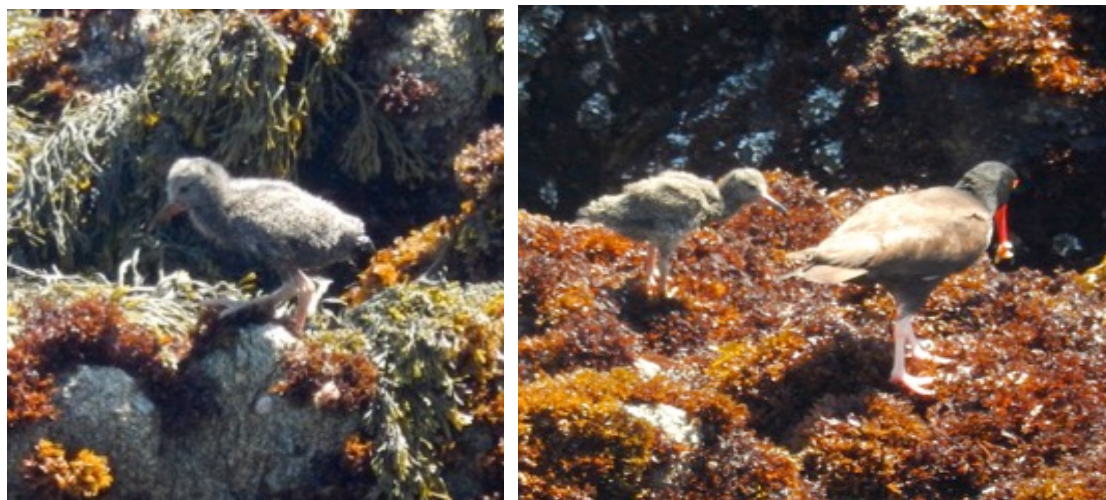
Exact or projected clutch size was assessed for nine of the 15 nesting pairs and four of the five re-nesting pairs. Most re-nesting attempts occurred at the Monterey Peninsula with the exception of one pair at Point Lobos (PL-2), a pair that succeeded in hatching all three eggs and fledging one bird. One Monterey Peninsula pair in particular (MP-3) re-nested three times. The first clutch had three eggs, the second clutch in the same nest had one egg, and third clutch in a different nest had one egg. There were a total of six nests that had unconfirmed clutch size due to the complexity of the shoreline and the distance of the nest from the observation points. In some cases, it was possible to obtain a clutch size by waiting to see the number of chicks hatched. The mean first clutch size was 2.67 eggs/nest and the mean second clutch size was 2.33 eggs/nest.



Image 12 & 13: Two undisturbed eggs at the MP-5 nest (left) and a nest of three eggs at MP-4 (right) disturbed by a Western Gull on Point Pinos, Monterey Peninsula.



Images 14 & 15: *One of three two-day old PL-7 chicks with parents (left) and all three PL-7 chicks with one parent (right) at Whaler's Cove, Point Lobos.*



Images 16 & 17: *Two-week old MP-5 chick (left) and same chick with parent on wrack (right) at Point Pinos, Monterey Peninsula.*



Images 18 & 19: *Two one-week old MP-7 chicks with parent among the rocks and Harbor Seals on the beach at Hopkins Marine Station (left) and one of the same chicks with parent three weeks later (right), Monterey Peninsula.*

Fledgling Success

Of the 22 nesting pairs monitored, there were a total of eight fledglings, with six associated with Point Lobos and only two fledglings on the Monterey Peninsula, both from one pair (MP-7). All fledglings were from five of the 15 nesting pairs. Three pairs in particular fledged two birds each (PL-7, PL-10 & MP-7). Fledgling success (# of fledglings / # of eggs) for all nests ranged from 15-19%. For individual sites, Point Lobos had a fledgling success of 30-35% and Monterey Peninsula had a fledgling success of only 6-8%.



Image 20 & 21: *PL-6 chick close to fledging (left) and a typical fledgling (right), note the bill with dark remnant of chick bill, undeveloped eye ring, and the buffy tips on feathers, Point Lobos.*

Fledgling Success 2013 & 2014 for MP-1 to MP-6

When comparing the same nesting pairs monitored in 2013 to those same nesting pairs monitored in 2014 season, the reproductive success for the MP-1 to MP-6 pairs was 11% in 2013 and 0% in 2014. Approximately 20-25 eggs were produced, five chicks hatched, and zero fledged in 2014. The MP-5 pair succeeded in fledging one bird in 2013 and came near to fledging another in 2014. The body of a nearly full-grown chick was found dead near the nest approximately one week after its death (From the position of the body and lack of any visual sign of any exterior trauma, it is surmised that the chick may have been killed by an off-leash dog that dropped the chick after the dog's owner saw what was happening). The MP-4 pair succeeded in fledging one bird in 2013 but failed in 2014 after two attempts. The first clutch failed due to Western Gull predation (personal observation) and the second attempt failed due to wave splash disturbing the clutch.

Table 1: Reproductive success of Black Oystercatcher in central coast by year.

Year	Number of Territories	Number of Nests	Number of Eggs	Number of Chicks	Number of Fledglings	Egg Success
2013	6	6	18 ¹	9	2	11%
2014	22	15	42 – 53 ^{1,2}	21	8	15%-19%

1. Count includes re-nesting attempts.

2. Minimum and maximum count consist of adding lowest and highest number in clutches with undetermined clutch size.

Table 2: Reproductive Success of Black Oystercatcher in central coast by site in 2014.

Location	Number of territories	Number of Nests	Number of Eggs	Number of Chicks	Number of Fledglings	Egg Success
Point Lobos	11	6	17 – 20 ^{1,2}	12	6	30% - 35%
Monterey Peninsula	11	9	25 – 33 ^{1,2}	9	2	6% - 8%

1. Count includes re-nesting attempts.

2. Minimum and maximum count consist of adding lowest and highest number in clutches with undetermined clutch size.

Fledgling Survival

The majority of fledglings seem to have disappeared within the first two months after being able to fly. At least one bird (one of the PL-7 fledglings) died during the first week after fledging. Predation by the Great Blue Heron that was frequently in the area may have been the cause. By the end of September, five of the eight fledglings were no longer observed anywhere in the area. The remaining three fledglings, however, were still observed foraging with both parents.



Image 22: *PL-2 fledgling following parent, Point Lobos.*

One pair in particular, the PL-2 pair from the northeast side of Point Lobos' Bird Island, was observed regularly outside its territory foraging with its fledgling in between two other territories (PL-3 & PL-4) in Weston Cove. The PL-2 pair has been observed acting aggressively towards other interloping oystercatchers utilizing the same area and towards the territorial pairs on either side. As the usual foraging area at the northeast side of Bird Island became occupied with numerous juvenile cormorants and Brown Pelicans, the PL-2 pair appears to have claimed a wedge between the two other territories as its own foraging territory, at least while it had its fledgling during this season. This provided the PL-2 fledgling a relatively rich and undisturbed foraging area.



Images 23 & 24: *PL-2 fledgling with parent (left) and PL-2 fledgling with both parents (right) foraging at Weston Cove, Point Lobos.*

Additional Observations

In the same location between the PL-3 and PL-4 as discussed above, a second-year female Black Oystercatcher was also observed throughout the breeding season and again in the late fall foraging regularly in the wrack between the two territories. During late spring and early fall, she attracted as many as half a dozen single male Black Oystercatchers, which she ignored. The same sub-adult female was also encountered moving throughout and foraging and resting within the PL-4 territory. The PL-4 pair did not nest this season but was observed on a number of occasions defending its territory from interlopers. Nevertheless, the PL-4 pair, as well as the PL-3 pair, allowed the sub-adult female to forage in Weston Cove. It appears that it was the intrusion of the PL-2 pair with its fledgling that eventually forced the sub-adult female Black Oystercatcher out of Weston Cove.



Images 25 & 26: *Weston Cove sub-adult female at Point Lobos (left) and the three-year old banded BLOY (right) that was observed in the winter and fall on the Monterey Peninsula.*

A banded unattached adult Black Oystercatcher, with a light blue band on the right leg and a black band above a silver band on the left leg, was observed at various times throughout the Monterey Peninsula. With the presence of an eye fleck, the bird appears to be a female (See Guzetti et al. 2008). She was first observed in late February on the northeast side of the Monterey Peninsula and then in early fall from the Pebble Beach area (between Bird Rock and Point Joe) to the Point Pinos area on the Monterey

Peninsula. The bird was banded as a chick in 2011 on the Southeast Farallones within the Farallon National Wildlife Refuge located 30 miles west of San Francisco's Golden Gate Bridge.

Disturbance

Monterey Peninsula. The Monterey Peninsula from Hopkins Marine Station to Asilomar State Beach receives a large amount of visitors on a daily basis year-round. Four sites in particular are vulnerable to human disturbance during low tide. In an attempt to minimize stress on the birds, three of these nesting sites were roped off with temporary signage around the rocks during the breeding season. As a result, the majority of the people utilizing the area respected the ropes and signs. The ropes with signs were placed at an adequate distance from the respective nests in order to avoid disturbance to the birds from human foot traffic. Several times monitors encountered people trekking the islet at Point Pinos with their dog off-leash. It was these occasions that were more likely to cause disturbance to nesting Black Oystercatchers, chicks, and fledglings. If the opportunity presented itself, monitors would speak with the dog owners and briefly inform them about the presences of Black Oystercatchers and, if interested, discuss the specific situation. Most of the time the dog owners were willing to place their dog back on the leash. The death of the nearly full-grown chick at MP-5 may have been the result of a dog off-leash.



Image 27: Before installation of seasonal roping and signing of MP-4 nesting rocks at the end of Point Pinos, Monterey Peninsula. The two people standing on top of the rock to the left are standing on the nesting rock for the MP-4 pair's first nesting attempt in 2014 and the two people on top of the rock to the right are standing on the nesting rock for the MP-4 pair's re-nesting attempt.



Image 28: After installation of seasonal roping and signing of MP-4 nesting rocks at the end of Point Pinos, Monterey Peninsula. These are the same rocks show in the previous photo (Image 27). The rope and signs that extend around the entire nesting area can be seen above the two people in the lower left corner. The four people in the photo turned away from the nesting rocks upon seeing the rope and signs.

Also at Point Pinos, the increase of roosting Brandt's Cormorants on the MP-4 nesting rocks appeared to have had a negative effect on the nesting Black Oystercatcher pair. It appeared to have forced nest site changes during the first nesting attempt and then later during the re-nesting attempt that resulted in the selection of a nest site that was vulnerable to threat from wave actions. The MP-2 nesting site on Gull Rock continued to be disturbed by roosting Brandt's Cormorant and, later in the nesting season, by roosting Brown Pelicans. On at least one occasion at the Gazebo Rock nesting site, harassment of

the nesting MP-1 pair by a single juvenile Brown Pelican was observed. At the Hopkins Marine Station (MP-7, MP-8 & MP-10) and at the 13th Street nesting site (MP-6), a Red-Shouldered Hawk was frequently observed causing disturbance to the nesting Black Oystercatchers and later to the growing chicks at MP-7. The loss of the two chicks at MP-8 may have been predation from a raptor (e.g., Red Shouldered Hawk or Great Horned Owl).

Point Lobos. Point Lobos receives a large amount of year-round visitors as well, at least as much as the Monterey Peninsula if not more. There are, however, two big differences between Point Lobos and the Monterey Peninsula. First and foremost, dogs are not allowed in the Point Lobos State Reserve. Second, most of the Point Lobos visitors tend to follow the set rules of behavior for the State Reserve. The Black Oystercatcher nest sites at Point Lobos are either disconnected from the mainland or protected with trail markers that keep most visitors from going off trail. Only two known nest sites (i.e., PL-3 & PL-6) are vulnerable to human disturbance as a result of their location. These nest sites occasionally have individuals trek off trail in order to take photographs, get closer to the water's edge, or other individual reasons. At Weston Cove, people inadvertently get close to foraging Black Oystercatchers, but the birds for the most part seem to tolerate this close contact. Overall, the oystercatchers are more likely to be disturbed by other avian predators as opposed to humans.



Image 29: Point Lobos visitors who crossed the cabled trail and climbed onto the PL-3 nesting Rock. Fortunately at this time the PL-3 nest had already failed a few weeks before, however, the nest failure could have been the result of a similar lack of some visitors to stay on the trail.



Image 30: A tide pool visitor at Weston Cove in close contact with the PL-3 pair that were foraging on the water edge, Point Lobos.

The PL-7 pair was regularly harassed by the presence of Great Blue Herons foraging in the area of the nesting rock. Predation by a Great Blue Heron may have been the cause of the loss of one of the PL-7 chicks, while predation by a raptor may have been the cause of the loss of one of the PL-7 fledglings. In addition, Peregrine Falcons were regularly observed cruising in the Bird Island area and perching on the top of Bird Island or in the top branches of a large dead tree on the hill to the east of China Cove. The Point Lobos State Reserve also provides an ideal habitat for other raptors, including Red-Shouldered Hawks and night raptors such as the Great Horned Owl. It is owls that may have taken the PL-1 chicks.



Image 31: Increased late summer occupation by juvenile Brandt's Cormorant on PL-2 BLOYS foraging area below northeast end of Bird Island, Point Lobos. Note the PL-2 adult in center of upper right quadrant of the photo.

Additional Nests Monitored in North Central Coast

While traveling along the North Central Coast in July of 2013 looking at Black Oystercatcher sites, a unique Black Oystercatcher nesting situation was encountered on Pescadero Rock, a small islet just off Pescadero State Beach along the San Mateo County coast. The rock is approximately 55 meters wide and 80 meters long. A high number of oystercatcher pairs were observed nesting and foraging in close proximity to each other. It was a virtual Black Oystercatcher “apartment complex” with at least four Black Oystercatcher pairs nesting within about a 40 square meter area and with each pair foraging in relatively narrow territories. This unusual nesting behavior for Black Oystercatchers appears to be due to this stretch of coast’s lack of other potential nesting

rocks, but with an abundance of food resources within the vicinity. A note was made to reassess the nesting area in 2014 and try to document reproductive success. It was also noted that Pescadero Rock is only accessible on foot at minus tides.

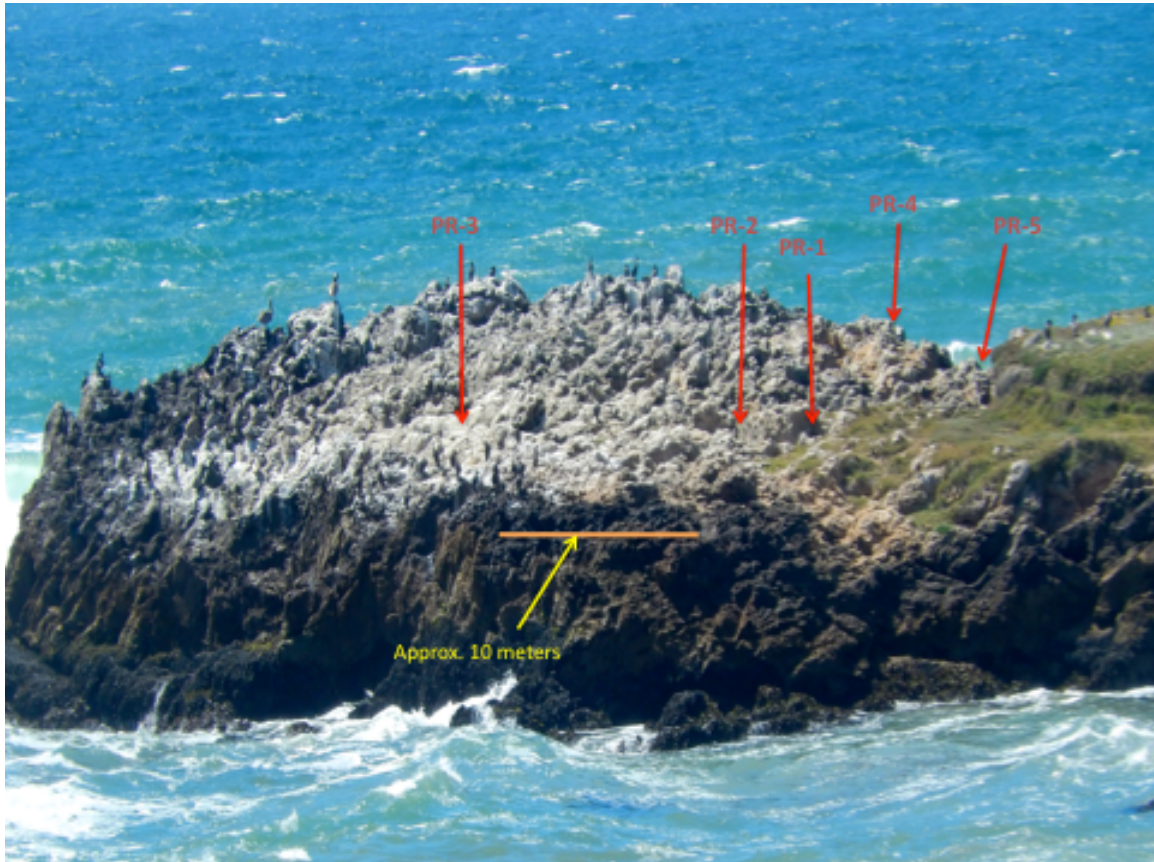


Image 32: *Approximate location of five BLOY nesting sites on Pescadero Rock off Pescadero State Beach, San Mateo County.*

In 2014, the Pescadero Rock area was visited at least three times. The first observation was done at a high tide on 13 June 2014. Five Black Oystercatcher pairs were identified, each with five separate and distinct narrow territories. Each nesting area was assigned a number with a “PR” (i.e., Pescadero Rock) prefix. The approximate site of each nest was recorded and plotted (See photo above) and the territories were tentatively delineated. All five BLOY pairs were actively attending nests and foraging for food for chicks. The closest nests to each other (i.e., PR-1 & PR-2) were less than two meters apart and the furthest away were no more than 40 meters apart (i.e., PR-1 from PR-5).

On 16 July 2014, the tide was low enough to walk out to and wade back from Pescadero Rock and to closely observe the BLOY nesting sites. Four of the five BLOY actual nests were clearly delineated, and the fifth nesting site was identified but the limited time on the rock did not allow for the delineation of the exact location of the nest. At least one fledgling was hiding on each of their respective nest site. A total of seven fledglings were observed on the rock. Each of the five BLOY pairs had at least one fledgling, with two nesting sites (PR-1 & PR-2) having two fledglings each.



Image 33: Example of BLOY nesting site concentration on Pescadero Rock, San Mateo Coast. The large arrow at the top center indicates the rock that separated PR-1 and PR-2. The nest for each BLOY territory was on opposite sides of the indicated rock. The three thin arrows indicate the location of hiding fledglings.

The number of eggs and chicks produced in 2014 is unknown, but the total of seven fledglings on Pescadero Rock is almost equal to the total number of fledglings from both the Monterey Peninsula and Point Lobos combined. There is no known occurrence, at least along the California coast, of Black Oystercatchers nesting in such close proximity and density as observed on Pescadero Rock. This makes the Pescadero Rock situation very unique and worthy of further observation and documentation. It is also worth noting that disturbance at low tide to nesting Black Oystercatchers by humans is likely to increase given the number of people encountered utilizing the beach and pullout at Pescadero State Beach.



Images 34 & 35: Example of density of discarded shell, primarily mussel, by nesting BLOYs as a result of close proximity of Pescadero Rock BLOY nests (left) and one of the PR-1 fledglings (right).

Recommendations

Based on observations in 2014 and previous years, the following recommendations are provided:

1. **Continuation and Expansion of Monitoring.** Continue monitoring the success of Black Oystercatcher reproduction on the Monterey Peninsula and Point Lobos. At a minimum, monitoring should cover all 22 territorial pairs monitored in 2014. At least five to ten years of monitoring are needed for a sufficient sample to determine a trend in reproductive success. Therefore, the monitoring effort needs to be sustained. If at all possible, the monitoring should be expanded to include the rocky shoreline of Carmel-by-the-Sea, located directly across Carmel Bay from the Point Lobos State Reserve. Also, adding at least some of the Black Oystercatcher nesting sites along Pebble Beach (e.g., Point Joe, Bird Rock, and Pescadero Rocks) would help fill in the gap between Asilomar State Beach and Carmel-by-the-Sea. In addition, consideration should be given to finding a way to cover some of the Yankee Point area located just to the south of the Point Lobos State Reserve (although gaining permission to access the private property in this area may be very difficult to obtain). Monitoring at Pescadero Rock in San Mateo County should be considered as well.
2. **Monitoring after Breeding Season.** In order to determine breeding success more accurately, Black Oystercatcher fledglings should be monitored for at least two months after fledging. The current protocol for monitoring breeding success of Black Oystercatcher ends when the chick fledges. The 2014 monitoring indicated that a third of the fledglings died or at least disappeared within two months after fledging, too soon to have obtained all the survival strategies needed to function successfully on their own. Monitoring fledglings for two months or more after fledging (i.e., post-fledging) would provide a clearer picture of the number of fledglings that may eventually make it into the breeding population. In addition, monitoring the Black Oystercatcher pairs at least once a month during the non-breeding season should be conducted in order to get a clearer picture of the status of each pair, delineation of territories and territorial use, winter behavior, and year-around threats.
3. **Marine Protected Areas Monitoring Integration.** Investigate how the Black Oystercatcher monitoring data collected at specific marine protected areas, as a subset of the State of California's new Marine Life Protected Area Monitoring Enterprise, can be integrated with other monitoring data being collected for other subsets (i.e., rocky intertidal and human activities) associated with the same State Marine Protected Areas. This could benefit the usefulness of all three of these monitoring efforts.
4. **Signing and Roping.** Before nesting begins, continue the signing and roping-off of each nesting site vulnerable to impacts from foot traffic. The timing for roping-off and signing areas is important to provide the most protection during incubation. The ropes and signs should be put up no later than late March in order to alleviate as much human disturbance as possible to the Black Oystercatcher nesting pairs that are setting up their nests and to ensure that people are kept off the nesting sites during the egg laying and incubation period, as well as any re-nesting period. It is also important to keep the ropes and signs up during the chick rearing and early fledgling period (e.g.,

the first month) in order to maintain a safe area for roosting and resting. In addition, consideration should be given to temporary signing of the PL-3 nesting area (near the China Cove parking area) in order to discourage visitors from walking on the ridge of the nesting site, assuming the PL-3 pair nests at the same nesting site. More durable signs should also be developed. The current laminated photo-copy signs were good for an initial quick fix, but not the best for continual seasonal use.



Images 36 & 37: Rope and sign around MP-4 nesting rocks on Point Pinos islet (left) and an example of one of the temporary signs after being exposed to wave wash and filling with water (right). Note the deterioration of the paper after being exposed to water. More durable signs are needed.

5. **Outreach.** Audubon California should convert its little-used Black Oystercatcher fact sheet into a single two-sided information card (e.g., 3"x8") and/or a four-sided brochure. Monitors are approached by people visiting the vicinity of the nesting areas and who are curious to know what the monitors are doing. As a result, monitors provide information on the Black Oystercatcher, answer questions about other resources of the area, and provide information on the California Coastal National Monument and/or Point Lobos State Reserve and other federal and state protective designations within the immediate vicinity. Currently, the California Coastal National Monument and/or the Seabird Protection Network brochure are being used, however, both only have a picture of a Black Oystercatcher but not information about it. A good Black Oystercatcher handout would help develop a better-informed visitor, increase habitat protection, and promote heightened success of Black Oystercatcher nesting and fledging.
6. **Closure of Select Nesting Sites on the California Coastal National Monument.** Formal closure to public access of select nesting sites on the California Coastal National Monument portion of the monitoring area should be considered. Closure could either be temporary, seasonal, or permanent, depending on what might be the most reasonable approach and public response to outreach. The part of the monitoring areas in need of immediate attention is within Point Pinos nesting site area for MP-4 and MP-5. On the Point Pinos islet cluster, the species diversity and habitat values are high, as is the human foot traffic in comparison to the rest of the monitoring areas. Taking this opportunity to ensure protection for the "unique habitat for biota" in support of the Presidential Proclamation that created the California Coastal National Monument would provide high visibility for collaborative conservation among the multiple partners with jurisdictions over natural resources of the Monterey Peninsula.

Pescadero Rock with its unique Black Oystercatcher nesting cluster should also be consider for closure to foot traffic as well.

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