

This crafty hunter stalks its shellfish prey along the shoreline's stony crevasses, adapting tactics to ensure its success and survival.





California's

Story by Mark Browning

On the edge with Black Oystercatcher

Few animals are so closely tied to the shoreline as this shorebird. Biologists can use its population numbers to determine the overall health of the ocean's frame.

Along the narrow strips of rocky shorelines that stretch intermittently from Alaska to Baja California dwells a dark brown shorebird with a bright-orange beak. Yellow rings encircle its red eyes and it strides on pink legs and feet. Despite its almost clownish appearance, it maintains an air of dignified indifference as it probes among the stony crevasses for shellfish, its primary prey.

Few animals are more closely tied to the special environment of the intertidal zone than the black oystercatcher (*Haemotopus bachmani*). It is a dynamic, complex niche that supports a rich web of life along the shoreline's high and low watermarks. And it is a niche where this large, long-lived shore-

bird is exquisitely designed to inhabit.

The Pacific Coast receives four tides per day—each flooding a different extent of shore—creating a world of hourly adjustment. As ocean waves move in and out of the tidal pools, salinity changes, temperatures rise and fall, the sun beats down and the limpets, whelks, mussels and seaweed cling to the rocks and adapt to their environment. When the tide rises, clams and mussels open their shells and extend their feeding tubes while sea worms poke their heads out of the sand and feed. As the tide recedes, the shells close to keep from drying out and the sea worms retreat.

Oystercatchers move with the water, hunting the tidal pools with long, blunt beaks that serve as part sword, part pry bar

and part chisel. When the tide is high and mollusk shells gape underwater, the oystercatcher employs a quick stabbing motion to render useless the abductor muscle that keeps the shell closed. It then runs its beak down through the crack between the two shells and pulls out the flesh. And when the tide goes out and the shells close tight, the bird switches strategies and pulls them from the rocks, flips them over to their softer underside and hammers through the shell to reach the abductor muscle.

Federal environmental restrictions list the black oystercatchers as a species of conservation concern and list it as a focal species for priority conservation action.

U.S. Fish and Wildlife Service biologist Gary Falxa studies the foraging habits of the oystercatcher. He says the innovative predator is capable of switching prey and tactics when necessary.

"With limpets, or aquatic snails, they pull them from the rocks and rip them from the shell by their exposed feet," Falxa says. Rarely, he explains, has he seen oystercatchers hammer through mollusk shells. "Instead, during low tide, they

switch to eating spiny sea urchins, which are an easier meal despite the spines."

It is this highly refined lifestyle wedded to shallow rocky shores that makes the black oystercatcher a perfect species for measuring the health of the intertidal zone, says Sue Thomas, a bird biologist with the federal migratory birds and habitat programs.

Thomas, who co-authored the 2007 Black Oystercatcher Conservation Action Plan, calls the population an intertidal obligate species. "This means they cannot live anywhere else," Thomas explains. "This makes them extremely vulnerable to catastrophes. Storms and oil spills like the Exxon Valdez could really hit them hard. They are so visible and so vocal they make a great indicator species."

Scientists define indicator species using three characterizations. First, the species should be restricted to a specific environment. Second, they feed at the top of the food chain so they represent an accumulation of environmental effects. And finally, they should be easily studied. The oystercatcher's large size (from 15 to 19 inches), bright beak and loud calls make

them easily surveyed on foot, from aboard a boat and even from an airplane.

In fact, the 1989 Exxon Valdez disaster in the Gulf of Alaska's Prince William Sound provided a good opportunity for just such a study. Research showed that the spill killed as much as 20 percent of the breeding population in that area. The environmental catastrophe significantly lowered breeding success within the affected area and increased chick mortality. Although cleanup efforts allowed the oystercatcher to rebound quickly, more than 15 years later oystercatcher biopsies show continued absorption of oil residues.

Thomas says populations are naturally low due to scarcity of the bird's prime habitat, low sloping rocky beaches. Other factors include increased human disturbances, coastal development and ocean contamination caused by oil spills. Some even tie low population numbers to shifting weather patterns due to the effects of climate change.

Thomas and her co-authors with the federal government and the Alaska Department of Fish and Game identified the bird's prime habitat along the Pacific Coast

Photograph © David Schinder



Foraging a tidal area along California's coast, left, a black oystercatcher searches for mollusks. When it comes across its prey it uses its blunt beak to pry open the hard shell. Even with parents guarding them as they take early steps, young oystercatchers, right, face a host of predators that include crows, bears and otters.

Photograph © Brian Guzzittee



from Alaska to California. The 120-page conservation action plan indicated many of the stressors on the birds, like how human activities near nesting sites affected them. It also considered ocean wakes caused by vessels and how winter migrating birds depend on southern habitat.

DFG environmental scientist Lyann Comrack is aware of the issues facing the black oystercatcher. DFG provided data on California that was included in the overarching joint publication.

"It does not appear that there has ever been a comprehensive black oystercatcher survey or census in California," Comrack says, "It seems to me that the black oystercatcher might make an interesting focal species of future concern based on projected changes to the coastal zone from climate change."

The black oystercatcher is one of a dozen species of oystercatcher that comprise the family Haemotopidae. These 12 species, distributed along the shores of every continent except Antarctica, fall into one of two basic color schemes: solid dark like the California version, and "pied," meaning they are dark above with white under parts. One species, the New Zealand variable oystercatcher, exhibits both color schemes. Some species have more pointed beaks, and these specialize in foraging on

annelid worms on sandy beaches. Others, like the black oystercatcher, specialize in eating mollusks and clams. Unlike many shorebirds, black oystercatchers do not breed colonially—they are highly territorial and breeding pairs defend distinct, well-spaced territories along their coastal habitat.

The majority of the breeding population, around 9,000 birds, lives in Alaska. In the U.S., researchers have counted 350 birds along the coast of Oregon, with 700 along the shores of Washington.

California's estimated 1,000 birds are distributed along hundreds of miles of coastline. Around 100 of these reside in Del Norte and Humboldt counties, with another 200 along the coast of Mendocino and Sonoma counties. Less than 70 live along the central coast but more than 250 birds are concentrated on the Channel Islands. Baja California holds another 100 birds.

Black oystercatchers live up to 16 years. Adults are mostly monogamous and cooperate closely in the rearing of young. They work together to build a nest, creating a scrape in the ground and knocking pebbles, shells and rock flakes into the depression with backward flicks of their bills. The female lays two or three eggs and both adults take turns incubating them

for up to 29 days. The tan, brown-speckled eggs are so adapted to the intertidal zone that they can survive submersion under an occasional high tide. After hatching, the chicks usually walk by the second day. One parent guards them while the other parent forages for food. The chicks remain close to the nest for five to six weeks; after fledging they remain with their parents in breeding territory for as long as six months. In the northern parts of their range, the chicks will migrate with their parents.

There are environmental reasons for this close relationship. A host of predators seek oystercatcher eggs and chicks, including crows, bears and otters. In California, domestic dogs and cats are added to the mix. And, during non-breeding seasons, the Glaucous-winged gull can ravage an area, reducing a 90 percent hatching success down to 16 percent.

Although for the most part, oystercatcher biology can withstand this kind of predation, other pressures are rising—not only on the oystercatcher but on the whole intertidal community.

Oil spills and pollutants in the ocean can obviously affect oystercatcher populations. On the East Coast, the American oystercatcher has helped determine the level of contaminants in seawater. Re-

Photo by Brian M. Guzzetti




Black oystercatchers have a life span of as many as 16 years. Adults cooperate closely in the rearing of young. They work together to build a nest by creating a scrape in the ground and knocking pebbles, shells and rock flakes into the depression with backward flicks of their bills. The pair above left, were banded as part of a study conducted for the *Journal of Field Ornithology*.

searchers use American oystercatchers, a close relative to the black oystercatcher, to measure blood samples for levels of toxins and heavy metals. Since oystercatchers live on animals that filter seawater, toxic substances in the water will show up in the birds. Traces of mercury and even the long-banned pesticide DDT have been found in oystercatcher blood. Such studies

serve as an ongoing monitor of sea-borne pollutants.

Still, despite various threats, the oystercatcher has shown itself to be resilient. And a study of the bird along California's entire coastline might offer insight to its long-term survival, says Dan Blankenship, a biologist with DFG's South Coast Region.

"In any type of potential California

study on the oystercatcher, we should include the entire coast and coordinate it the way other states have," Blankenship says. "The most complete studies are the ones that look at the whole coastline." 

Mark Browning is a freelance writer who lives in Pittsburgh, PA. This is the first time his work has appeared in OUTDOOR CALIFORNIA.



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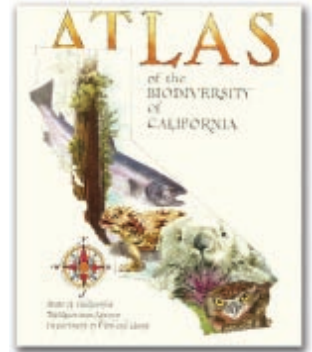
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