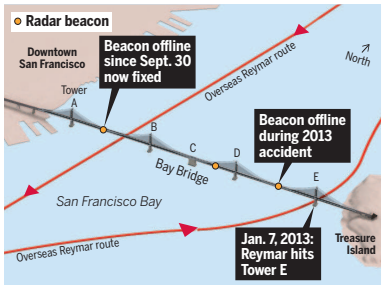
LOCAL NEWS

REPAIRS CUT CHANCES OF CATASTROPHIC SAN FRANCISCO BAY OIL SPILLS

Bay Bridge navigation beacon fixed

Three radar beacons help guide ships through the Bay Bridge, but one was offline for nearly five months. It was fixed Saturday. A broken radar beacon contributed to the 2013 accident in which the tanker Overseas Reymar struck a tower on the Bay Bridge.



Source: U.S. Coast Guard PAI/BAY AREA NEWS GROUP

After 5 months, bridge beacon on alert again

Manufacturer's defect had idled guide for ships and three replacements

By Paul Rogers
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Finally solving a mystery that increased the risk of oil spills in San Francisco Bay for the past five months, Caltrans has fixed a broken radar beacon on the Bay Bridge that alerts oil tankers and other large ships to the midpoint between bridge towers.

The beacon, known as "RACON N," was replaced on Saturday afternoon, said Myeast McCauley, a spokesman for the state transportation department, which owns the bridge.

"We can assure the public that Caltrans is maintaining these beacons at an optimal level of performance," he said.

The failure of the beacon, as well as three replacement beacons that Caltrans had installed, was caused by a manufacturer's defect, McCauley said. The broken beacons were sent to Pharos Marine Automatic Power, a Houston company, for warranty repairs, and then forwarded to the firm's parent company in England.

A replacement beacon arrived from England on Saturday and was

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HEADING EAST

San Jose airport's next stop: China

Hainan will begin offering flights five days a week in June

By Mike Rosenberg
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SAN JOSE — Long an afterthought for international travelers, San Jose's airport on Tuesday scored a moderate boost as it announced its first flights to China.

Hainan Airlines will operate nonstop Boeing 787 Dreamliner service between Mineta San Jose International Airport and Beijing five days per week starting June 15. It is just the third outside country served at the airport, after Mexico and Japan.

Bay Area residents heading to China could already fly there from San Francisco International Airport, which has about 95 percent of the region's international flights. But with the strong ties between Silicon Valley and China, industry officials think there is demand for more service. An estimated 220,000 people in Silicon Valley are of Chinese descent, and more than 500 local companies have offices in China.

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AGENCE FRANCE-PRESSE VIA GETTY IMAGES

GREASY FEATHERS

Mother Nature oiled these birds

Researchers say 9 of 10 oil-coated birds found along state's coast had contact with natural seeps

INTERNATIONAL BIRD RESCUE PHOTOS

Julie Skoglund, of the Southern California International Bird Rescue Center, examines a brown pelican covered in oil, which may come from natural seeps off the Santa Barbara coast. Researchers think 1,000 seabirds are covered with oil from seeps each year.

A common murre is washed at the Southern California International Bird Rescue Center. Grebes and murres are the most likely victims of oil coating.

"It's like if you were skiing and had a hole in your down jacket. If their feathers get all gummed up, it messes up their waterproofing."

— Hannah Nevins, seabird biologist

By Leigh Cooper
Santa Cruz Sentinel

SANTA CRUZ — The television images after a catastrophic oil spill, such as the one caused by the container ship Cosco Busan's 2007 collision with the Bay Bridge, are often stark and heartbreaking — thousands of birds covered in oily tar struggling for their lives.

But marine birds smeared with oil continuously wash up on California beaches, and not just after large accidents. The culprit: nature.

Oil from natural seeps accounts for 9 of 10 oiled birds found along California's coast in the average year, according to researchers at Santa Cruz's Marine Wildlife Veterinary Care and Research Center. Researchers counted oiled birds washing up on California's coast and sent their greased feathers for "oil fingerprinting" to identify the origination of the oil.

Before working on the study, "I didn't know much about these natural oil seeps in California," acknowledged Laird Henkel, the center's director. "We are guessing that more than 1,000 seabirds are oiled each year by this natural source of oil."

Similar to the La Brea tar pits in Los Angeles, natural seeps

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Birds

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are cracks in the ground where oil oozes out. Worldwide, nearly 200 million gallons of oil pour into marine ecosystems annually from such seeps, according to the National Research Council. That amount is half the crude oil released into the ocean each year. Humans are responsible for the other half through discharge from ships, oil operations, pipelines, spills and extraction.

Once the oil rises to the surface, the birds come in contact with it.

"Most of the oiling occurs around the belly, called the bathtub ring," said Hannah Nevins, a seabird biologist with the American Bird Conservancy. The birds then rub it onto their wings and, if they try to clean themselves, smear it onto their faces and beaks.

Covered in oil, the birds risk hypothermia when they dive for food; they can die from starvation or the cold.

"It's like if you were skiing and had a hole in your down jacket," Nevins said. "If their feathers get all gummed up, it messes up their waterproofing."

The recently published study by the Marine Wildlife Veterinary Care and Research Center took about a decade to complete.

First, researchers asked two long-term bird monitoring groups for data on the number of birds found oiled on beaches each year.

Oiling patterns

Volunteers from Beach COMBERS, a "citizen scientist" group based in Moss Landing, scoured Central Coast beaches monthly for dead birds. At the same time, the Oiled Wildlife Care Network at UC Davis, which tracks the number of oiled birds found by the public along California's coast, offered its bird counts to the team. The data, collected from 2005 to 2010, helped the scientists look for patterns to the oiling of marine birds. International Bird Rescue in Fairfield cared for and cleaned oiled birds found alive.

Although the number of oiled birds tallied was relatively small, diving birds such as grebes (41 percent) and murres (28 percent) were the most likely victims.

For species with large, healthy populations, the deaths from oiling will not have a large impact, but for endangered species such as the marbled murrelet, a loss of 100 birds every year could be significant, Nevins said.

The number of oiled birds peaked near the largest California seeps, located in the Santa Barbara Channel. The seeps come from the Monterey Formation — the sedimentary geological formation under much of California's coastline.

The study also showed that more oiled birds landed on beaches during the winter. The scientists theorized that big winter storms scrape tar away from otherwise blocked seeps.

During their bird counts, the researchers gathered oiled feathers from the bedraggled birds. They sent the gooey feathers to chemistry labs for oil fingerprinting to track the oil back to its origin.

Oil is constructed of complex, Tinkertoy-style rings of carbons and hydrogens. And these patterns differ slightly, depending on the oil's source, explained Thomas Lorenson, a U.S. Geological Survey geologist in Santa Cruz who was not involved in the study. Just like crime scene investigators match the ridges of a fingerprint at a crime scene to a suspect's fingerprint, petroleum chemists can match oil from a feather to oil from a source.

The number of oiled birds peaked near the largest California seeps, located in the Santa Barbara Channel. The seeps come from the Monterey Formation — the sedimentary geological formation under much of California's coastline.

Monterey Formation

All natural oil found on the feathers came from the Monterey Formation, and most started in the Santa Barbara Channel. Researchers also recently matched a set of samples taken from feathers, tar balls and sea otter fur to a recently discovered seep off the San Luis Obispo coast.

Oil degrades in water; bacteria nibble on the digestible bits. Seep oil, exposed to water for an extended period of time, is highly degraded compared to oil discharged directly from oil production. "You use the fingerprinting to tell if the oil is from the Monterey Formation, and you use degradation to say there is a great likelihood that it is seep oil," Lorenson said.

Of the 11 percent of "oiling events" linked to human-caused oil sources, bilge cleaning — the dumping of oily ship water at sea — accounts for about half, Henkel said. Research shows human-caused oil pollution has declined markedly in California, most likely a result of increased regulations limiting bilge cleaning.

The study also showed that cleanup efforts on previously leaky shipwrecks were successful. Oil from the S.S. Jacob Luckenbach, 17 miles southwest of San Francisco, and the S.S. Palo Alto at Seacliff State Beach in Aptos, was cleaned up in 2002 and 2006, respectively.

Oil from the two ships accounted for 6 percent of oiled birds collected along the Central Coast, the study found. Oil from both sources has since disappeared.

"We are not aware of any other leaking shipwrecks, but that's one of the advantages of doing the oil fingerprinting," Henkel said. "If we find a bunch of samples that don't fit the Monterey Formation oil, then we could potentially look for the source of that oiling."

By identifying both seasonal and geographic patterns of different sources of oil, the scientists can be on the lookout for anomalies, specifically human-caused oil sources that need their immediate attention.

"If we see something abnormal," Henkel said, "we can be more suspicious."

JANE TYSKA/STAFF ARCHIVES

In 2013, the empty tanker Overseas Reymar struck the southwest tower of the Oakland-San Francisco Bay Bridge, an accident blamed partially on a faulty navigation beacon on the bridge. A major spill was averted.

Beacon

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installed that day, McCauley said.

Caltrans originally said the beacon, which is located near the San Francisco shoreline between the westernmost towers of the bridge, known as the "A" and "B" towers, first failed on Dec. 17. After checking its records, however, it confirmed that the $40,000 device stopped working properly on Sept. 30.

Caltrans officials purchased three Phalcon 2000 replacement beacons, but they also failed to work when installed.

During the nearly five months since the beacon first broke, hundreds of large ships, including fully loaded oil tankers, sailed under the bridge — sometimes in fog — between the two towers.

After this newspaper first reported the vulnerability last month, the increased risk of an oil spill drew the attention of the Bay Area's newest congressman.

"It's a huge issue that this bridge operate safely and that we don't have another incident where a ship hits the bridge," said Rep. Mark DeSaulnier, D-Walnut Creek, who sent a letter to the commandant of the Coast Guard last week requesting a meeting to discuss his concerns.

"You've got to have the best available technology," he added.

DeSaulnier said he wants to find out whether there is more reliable technology available, whether the beacon manufacturer bears liability if an oil spill occurs, and whether Caltrans can improve its testing procedures.

There are three radar beacons attached to the Bay Bridge.

While they are sailing in and out of the bay, ship captains have radar, GPS, human lookouts on deck and radio contact with Coast Guard officials. But the beacons, which have been installed on the underside of the Bay Bridge since 1992 and send Morse-code-like signals that show up as marks on ship radar screens, are considered important tools that many sailors rely on in bad weather.

Coast Guard investigators said that the failure of one of the beacons two years ago contributed to an accident when the Overseas Reymar, a 752-foot-long oil tanker, hit a tower of the bridge near Yerba Buena Island in January 2013, causing $1.4 million in damage to the tower and carving a large gash in the side of the ship.

In November 2007, the cargo ship Cosco Busan also hit a Bay Bridge tower, spilling 53,000 gallons of bunker fuel into the bay, oiling 69 miles of shoreline and killing more than 6,000 birds.

Unlike the Cosco Busan, the Overseas Reymar was empty, having unloaded millions of gallons of crude oil at the Shell refinery in Martinez the night before. Had the ship been full of oil, it could have created an ecological disaster.

On Tuesday, industry leaders and environmentalists said they are pleased that all three beacons are apparently working properly.

"Obviously this was a concern for everybody involved in navigational safety," said John Berge, vice president of the Pacific Merchant Shipping Association, an industry group. "It's great that it got so much attention and that Caltrans got to the bottom of it."

Berge noted that the San Francisco Bay Harbor Safety Committee, a state panel, last week made permanent rules that were put in place after the Overseas Reymar accident. They ban large ships from sailing north under the Bay Bridge if fog reduces visibility to less than half a mile.

Meanwhile, the Coast Guard is experimenting with a new technology, called e-ATON, or electronic aids to navigation, that could one day replace the radar beacons with electronic charts aboard ships alerting them to the location of buoys, bridges, rocks and other features using VHF radio frequencies.

"San Francisco Bay is iconic. It's why people visit here and live here," said Deb Self, executive director of San Francisco Baykeeper, an environmental group.

"A major oil spill would be devastating. Prevention is the most important priority. The oil from the Exxon Valdez spill is still coming up from the sand. And that was nearly 26 years ago."

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ARIC CRABB/STAFF ARCHIVES

The oil tanker Overseas Reymar suffered a gash in its hull when it collided with a Bay Bridge tower.

ONLINE EXTRA

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