

# Beach Tar at Coal Oil Point

## What is Beach Tar?

Tar balls come from **oil**. In the ocean, oil rises to the surface and then partially **evaporates**. A sticky substance is left behind, which then washes up on shore and becomes the inconvenient tar we are all too familiar with. The source of the oil can be an oil spill or a natural **oil seep**. Oil seeps are fractures in the sea floor in areas rich in oil and hydrocarbons. Oil escapes through the fractures and rises to the surface.

## Is it dangerous to my health?

Contact with tar is **not harmful** in small amounts. The NOAA recommends limiting contact as much as possible. The amount of tar you would regularly encounter when visiting a beach, however, is not dangerous. Tar can be removed from the skin with soap or baby oil.



image from Doc Searls Weblog



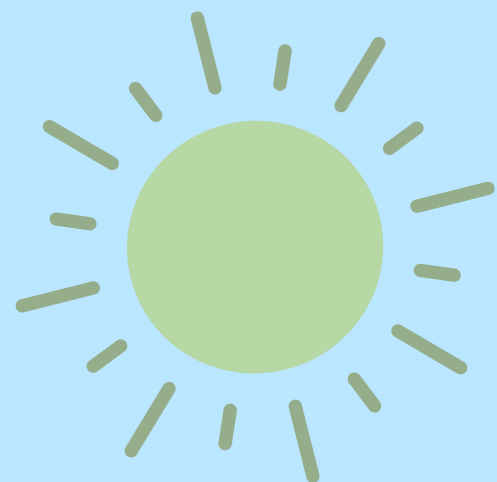
Image from Johnny Jet.com

## The Coal Oil Point Seep Field

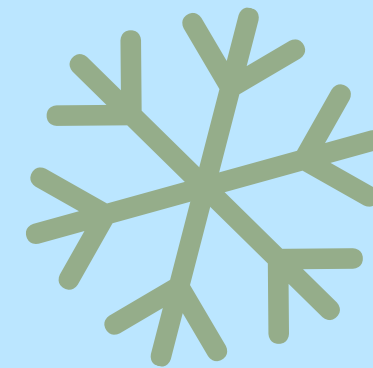
There is a natural seep field off the coast of Coal Oil Point. It produces a large amount of oil, and is considered one of the **most prolific** natural seeps in the world. The Woods Hole Oceanographic Institute estimates that **20 to 25 tons** of oil are released from the seep every single day. That's around the same volume as 1,168 tanks of gasoline. The tar that can be found on the beaches of Isla Vista and Santa Barbara is a product of this natural seep.

## Is it harmful to the environment?

Natural oil seeps are very old, and the one here at Coal Oil Point has likely been emitting oil for **thousands of years**. While the oil leakage is natural, it is still somewhat harmful to the environment. Oil from these seeps is **toxic** to marine life, and oil on the ocean surface can be harmful to sea birds. This being said, the natural oil seepage does not have such drastic effects as a human-caused oil spill, due to the comparably slower speed and the regularity of the emission.



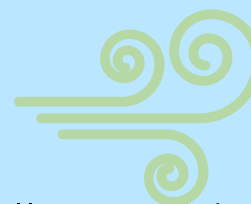
# Seasonal Variability of Tar



## Tar on Summer Vacation

If you've ever felt like just when beach tar seems to have been gone for months, it appears again? It's not just you- the amount of tar on the beach **varies** greatly, not only from day to day, but **season to season**. A group of scientists set out to see if there was a detectable pattern to this variability, or any underlying reason for it.

## Any Way the Wind Blows?



So, beach tar accumulates seasonally- could this be due to environmental factors? The study investigated the relationship between the direction of the wind and tar accumulation. They found that there was more **wind** blowing to the **north** during the spring and summer, which is when tar accumulates the most.

Because the Coal Oil Point beach faces **south**, this finding implies that wind could be helping push tar on the ocean **toward** the beach during the summer, and **away** from the beach during the winter.



Image from abc7 Los Angeles

They looked at our very own Coal Oil Point beach. They found that tar accumulated on the beach during the **spring and summer** much more than it did in the fall and winter. The amount of tar on the beach **doubled** between winter and spring, and then **again** between spring and summer. Just in time for summer vacation beach days!

## Choppy Waters

Besides the wind's direction, two other environmental factors seem to influence tar accumulation. One of these is the average height of large waves, also called **swell height**. It appears that, the larger the swell height, the **less** beach tar accumulates. The other factor is **surf zone activity**. The surf zone is the region of the water where waves crash and foam.



When the surf zone is more turbulent, oil on the ocean's surface is distributed over a larger area. When oil is more dispersed, **less tar** reaches the beach in the first place. Additionally, when combined with large swells, a turbulent surf zone will wash tar away from the beach **more often** throughout the day. This means that tar will stay on the beach for **shorter** periods of time.



# Coal Oil Point and Useful Research

## Beach Day Planning

Research on the seasonal patterns of tar will be useful for lots of people, including beachgoers! If we know that tar accumulates in the summer, with strong wind, or with calm seas, we can better **plan** for this. Community **awareness** of the patterns of tar accumulation will help people know what to expect on a beach day. This will, hopefully, also raise awareness on how to get rid of tar on the skin, and allow people to arm themselves with the proper **equipment** to do so.



Image from All About Birds

## A Model for Oil Spills

A better understanding of tar's seasonal variability could help to **identify oil spills**. Even though the tar on these beaches almost always comes from natural seeps, it looks the same as it would if there had been an oil spill caused by humans. If the seasonal patterns of beach tar are understood, **anomalies can be identified** more easily. If there's a huge spike in beach tar in the middle of December, that is a **red flag** that there may be an oil spill nearby.

## Snowy Plover Conservation

Coal Oil Point is home to a protected population of shore birds called **Snowy Plovers**. There is a large effort to help these adorable birds, and protect them from natural and human-caused dangers. Tar and oil can be **dangerous** to birds, so understanding their seasonal patterns can help in creating **management plans** for keeping Snowy Plovers safe.



Image from LA Times



Image from NCBrunswick.com



# History of Coal Oil Point

## Platform Holly

One of the most recognizable landmarks at Coal Oil Point is **Platform Holly**, an oil platform located right next to the point. It can be seen plainly from all of the beaches in Isla Vista and at UCSB, and at night, lights up like a beacon. Platform Holly was placed in **1966**, and was producing oil for nearly 50 years before being **decommissioned in 2015**.



Image from LocalWiki



Image from Mission Blue

## Artificial Reef

Today, hundreds of **fish and invertebrate species** have turned Platform Holly's underwater structural elements into a home. The rig functions as an **artificial reef**, and is teeming with life under the sea. There are many possible futures for Platform Holly, but because of the marine life that depends on it, many object to its complete removal.

## 1969 Oil Spill

Today, Platform Holly brings back unpleasant memories of the infamous **1969 oil spill**, which occurred on Platform A just east of Holly. The spill released **80,000 barrels**, or over **3 million gallons**, of oil into the ocean, and spurred a wave of anti-drilling activism.

## Chumash Uses of Tar

The natural seep here has been producing oil for a long time, and long before Platform Holly was placed here to take advantage of that, humans have found uses for oil and tar. The **Chumash people** on the Channel Islands found many uses for hard, high-grade asphaltum, which they mined. This material is **harder and more durable** than the soft tar balls that are washed up on our beaches, and when mined from land-based deposits, was called *woqo*. Chumash people used *woqo* to **waterproof bottles and baskets**, and to **caulk redwood canoes**. *Woqo* was also mixed with pine resin, which resulted in *yop*, a useful **adhesive material**.