

# KELP

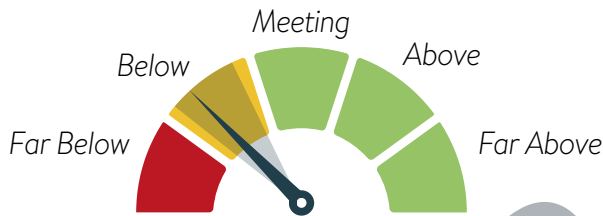
## CALIFORNIA OCEAN & COAST REPORT CARD

**WHAT ARE KELP?** Kelp are large marine algae that grow on temperate rocky reefs, creating kelp forests that shape coastal ecosystems. California has two canopy-forming kelp species: giant kelp in southern and central California and bull kelp in central and northern California.

**WHY ARE KELP IMPORTANT?** Kelp forests are home to many species that are economically, ecologically, and culturally important. They are world-renowned for their biodiversity and are incredibly significant to California Native American tribes.

### 2024 STATUS

*How is kelp doing?*

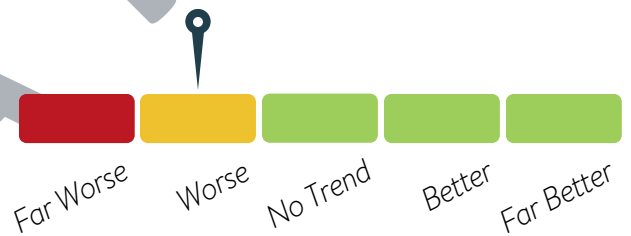


**Below Expectation**

*relative to reference condition*

### TREND

*How is kelp changing?*



**Getting Worse**

*over the past 40 years*

## KEY TAKEAWAYS

Kelp cover canopy is **below average**. Coast-wide, average canopy cover is less than 50% of historical cover, and 3/4 of kelp beds are below historic norms. This is the third lowest year on record since 1984.

Kelp canopy is **declining coast-wide**. Kelp canopy varies from year to year, and it is currently at near an all-time low compared to the last 40 years.

Kelp is most impacted in **northern California**. Kelp in **central and southern California** have rebounded slightly from 2023, and some of the **Channel Islands** are doing well.

### WHERE THIS INFORMATION COMES FROM

A team of kelp scientists reviewed decades of satellite imagery that measures the amount of kelp canopy on the ocean's surface.

**2024 Status** is the percent of the coastline with kelp canopy below historical amounts.

**Trend** is the change over the most recent 40 years (1984-2024).

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## DIVE DEEPER INTO THE DATA

Kelp numbers have not been this low for more than two decades. An unprecedented marine heat wave in 2014-2016 led to massive kelp die-offs across the West Coast, and kelp canopies have not rebounded along large portions of California. The State is investing in kelp research, recovery, and restoration.

In **northern California**, substantial declines started in 2016 2014 when a marine heat wave coincided with the loss of sea stars and an explosion in the population of kelp-eating purple sea urchins. This area has yet to recover.

Numbers in bubbles indicate regional average canopy coverage relative to the historical baseline.

-97%

**Central California** rebounded from a particularly poor year in 2023 but is still below historical canopy area.

-60%

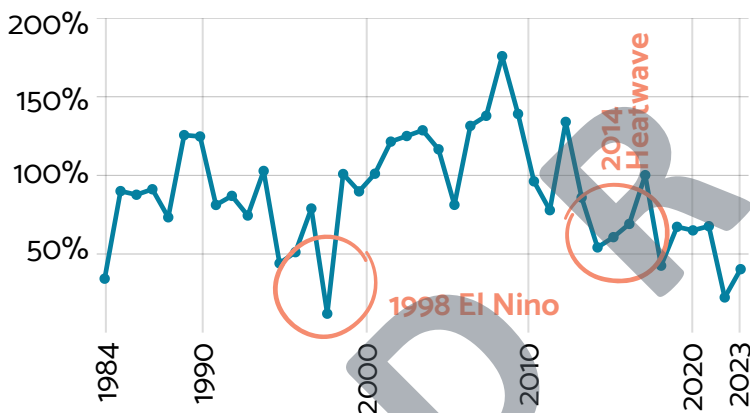
**Southern California** kelp canopy is lower than historical canopy area and has remained low since 2023. Scientists are actively studying this area.

-77%

+7%

The southern **Channel Islands**, such as San Clemente and Catalina, have abundant kelp canopies. The northern islands, such as San Miguel and Santa Rosa, are experiencing variable declines in kelp canopy.

Percent of Coastwide Historical Kelp Canopy



## LOOKING AHEAD

Marine heat waves, which negatively impact kelp, are expected to become more frequent and more severe with climate change. Early investments in restoration, protection, and mitigation show promise for improving kelp forest ecosystem resilience status.

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CALIFORNIA OCEAN SCIENCE TRUST



West Coast OCEAN ALLIANCE



CALIFORNIA OCEAN PROTECTION COUNCIL

This report is part of the California Coast and Ocean Report Card, developed through a partnership between the Ocean Protection Council, the Ocean Science Trust, and the West Coast Ocean Alliance.

Learn more at URL

# HARMFUL ALGAL BLOOMS

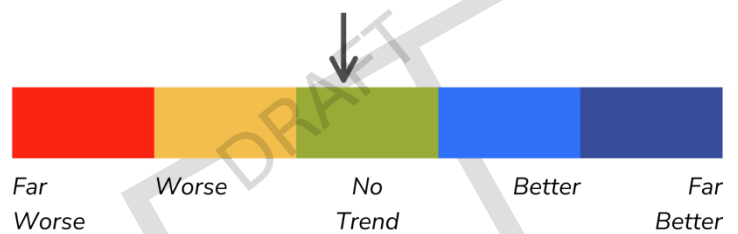
**What are HABs:** Harmful algal blooms (HAB) are overgrowths of specific types of algae that can produce toxins that contaminate seafood and cause marine wildlife illness.

**Why are HABs important:** HABs occur naturally, but there is concern about increased frequency resulting from human activities. Increases in HAB events can harm the environment and coastal economy.

## 2023 STATUS



## HISTORICAL TRENDS



## Key Takeaways

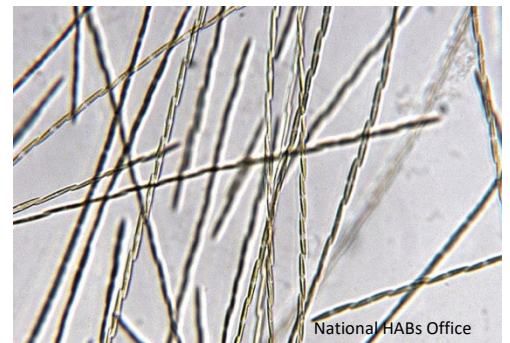
- > HAB status along the U.S. West Coast in 2023, as measured by the number of shellfish contamination advisories and marine mammal stranding events, was **Meeting Expectation**, consistent with the long-term average.
- > There is **no trend** in HAB impact on shellfish harvesting on the U.S. West Coast.
- > While shellfish closures were more typical of the long-term average in 2023, another measure of HAB impacts, marine mammal strandings, was above the historical average in Southern California.

## Where This Information Comes From

A team of HAB scientists and resource managers reviewed nearly 20 years of data to identify status and trends using a combination of shellfish advisory and closure data due to HAB toxins and marine mammal stranding event caused by HABs for California, Oregon and outer Washington.

**Current Status** was calculated as the proportion coastal zones in a year with HAB impacts to shellfish harvesting and marine mammals.

**Historical Trends** were determined by examining changes over 15 years.

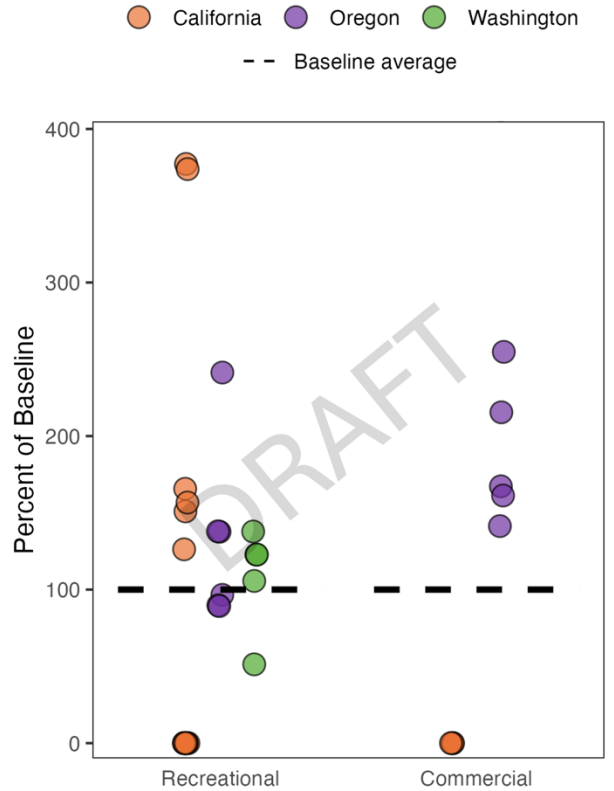


## Dive Deeper Into The Data

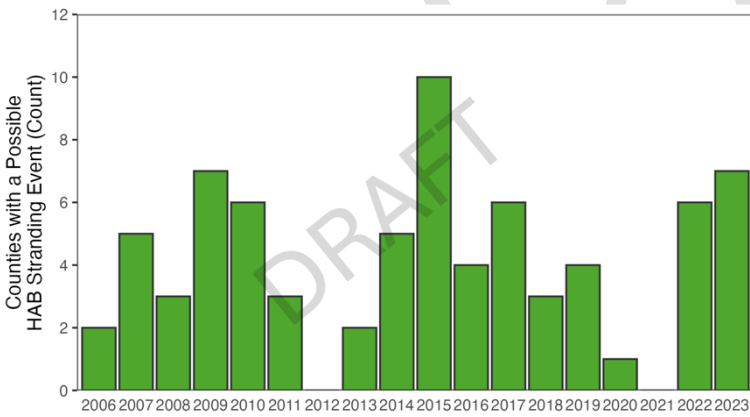
We assessed status by tracking the number of days with an advisory or closure due to HAB toxins for economically and socially important bivalve shellfish. Overall, the duration of closures was similar this year to the historical baseline for many coastal zones. However, there were local patterns, with the harvesting season for razor clam shortened in most of Northern California, as were razor clam harvesting opportunities in Washington.

The second way we assess HAB effects is by examining marine mammal stranding events caused by HAB toxins. The number of marine mammals stranded this year due to HAB toxins was higher than average. This was due to exceptionally high strandings in Southern California where an estimated 900 marine mammal strandings were recorded.

There is no trend in HABs Coast-wide over the nearly 20-year period of data collection. Regionally, HAB events have impacted marine mammals in Southern California more than normal in the last two years. Additionally, HAB toxin types that were rare prior to 2015 are now frequently observed in in Northern California and Oregon.



Percent of deviations from historical baseline for 2023 of HAB impaired shellfish harvest opportunity by coastal zones, considered by shellfish harvesting sector. Points are colored by state in which each zone is located.



Counts of counties that experienced a marine mammal stranding event that are believed to be caused by HAB toxin exposure.

## Looking ahead

The shift between La Niña to El Niño cycles has been linked to several larger than average HAB events that occurred in recent years in Southern California. The marine heatwave from 2014-2016, ‘the blob,’ was a recent climatic event that has also been linked to atypical HAB events in Northern California, Oregon and Washington. Increased water temperature in these regions allowed for the northward expansion of HAB species that were previously rare in those regions.



Scan to learn more about this project and access related maps, data, tools, and indicator reports.



This report is part of the West Coast Ocean Health Dashboard, a project of the West Coast Ocean Alliance, a regional ocean partnership of state, Tribal, and federal government members. Learn more at [www.westcoastoceanalliance.org](http://www.westcoastoceanalliance.org)