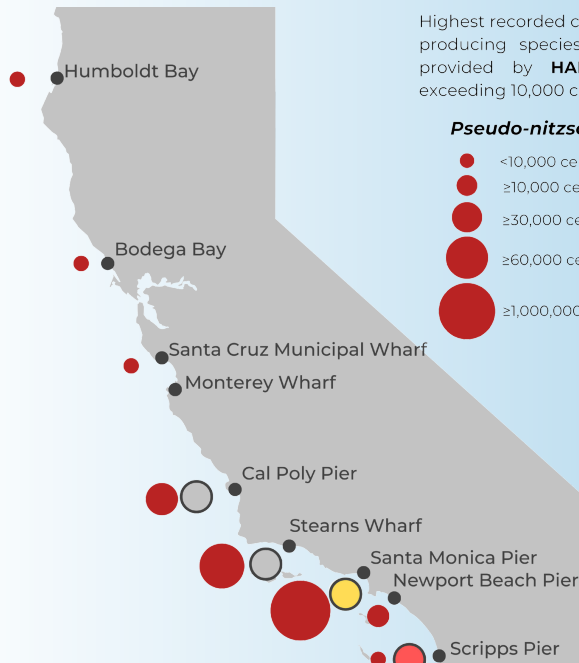


Highest recorded concentrations of *Pseudo-nitzschia* spp., a domoic acid producing species, and particulate domoic acid in February-March provided by **HABMAP**. Concentrations of *Pseudo-nitzschia* spp. exceeding 10,000 cells/L are considered concerning.



Ongoing Event: Toxic Harmful Algal Bloom (HAB)

- Unprecedented multiple-toxin event
- Significant bloom with high DA toxicity
- Severe marine mammal + seabird strandings
- PSP impacts on seafood + public health

By the Numbers

Feb. 21

first DA stranding

330

animals reported

1

PSP seafood advisory

Why is this event so severe?

- **Two different types** of marine algae are present. Each produce a unique **neurotoxin** that can cause **illness & death** in marine mammals/seabirds, and can also **harm humans**:
 - **Domoic Acid (DA)** → Amnesic Shellfish Poisoning
 - Saxitoxin → **Paralytic Shellfish Poisoning (PSP)**
- This is the **4th consecutive year** of major **DA-related** marine mammal mortality events in Southern CA.
- **High DA levels** are detected at our shore stations and in animal samples. High toxin levels lead to larger numbers of strandings, deaths, and more **severe neurological effects** – which have led to inadvertent attacks on humans.
- This year's HAB severity may be exacerbated by **La Niña conditions**, and *potentially* ash from the **recent LA fires**.
- Though final counts are pending, CA rescue centers report this **DA event** has caused **more dolphin and seabird strandings** than the past 3 years, with the potential to surpass prior events in total strandings.
- CDPH issued a **shellfish harvest advisory** in Santa Barbara due to **PSP** surpassing the critical safety threshold.



Above: Stranded Common bottlenose dolphin, in a photo from LA Lifeguards.

Below: CA sea lion being treated for DA poisoning.



Marine Mammal Care Center

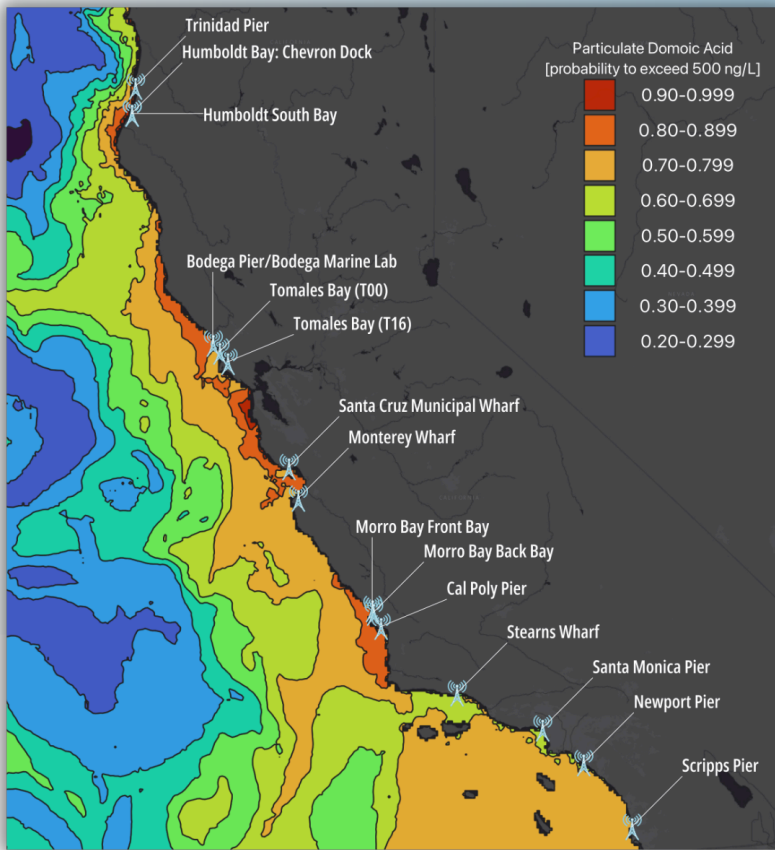
CA HAB Bulletin

SCCOOS publishes a bimonthly online bulletin that summarizes CA HAB events & forecasts

See more at SCCOOS.org

Report a stranded animal (West Coast)

Marine Mammal Stranding Network 1-866-767-6114

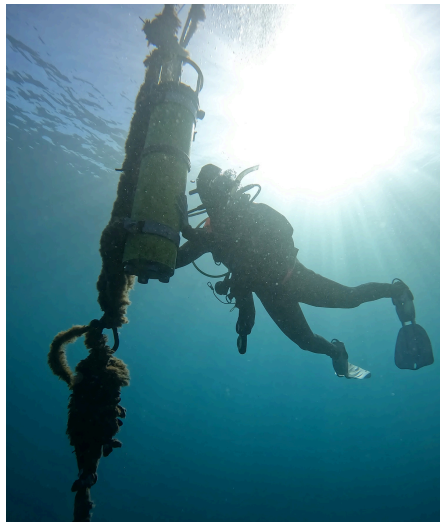


Monitoring + Prediction Harmful Algal Blooms (HABs)

Marine mammal rescue centers and public health officials rely on HAB monitoring infrastructure + data products

Above: SCCOOS + CeNCOOS assets overlaid with the C-HARM model predicted probability of particulate domoic acid output for 2/17/25-3/17/25

Below: Diver services an IFCB that detects phytoplankton and HAB blooms in real-time.



	<u>Date</u>	<u>Animals Reported</u>
	Aug 2022	100
	May-Aug 2023	1,000+
	Jul-Aug; Sep-Oct 2024	231; 87
	(ongoing) Feb-Mar 2025	330 and counting

Recent HAB Events

California's HAB Monitoring Infrastructure

SCCOOS & CeNCOOS HAB-detecting + monitoring assets include:

- **Automated *in-situ* Imaging FlowCytobots (IFCBs;** pictured left) are advanced systems that capture real-time images of phytoplankton in the water, providing immediate data access to ongoing blooms.
- **HAB Monitoring and Alert Program (HABMAP)** weekly water samples and plankton cell counts collected at coastal sites.
- **California Underwater Glider Network** autonomous gliders are deployed 24/7 to inform researchers about changes in ocean conditions (e.g. upwelling) that drive HABs.

Forecasting CA HAB Conditions: The C-HARM Model

The **C-HARM model** predicts the likelihood of algal blooms and harmful domoic acid levels using numerical models, ecological forecasts, & satellite ocean color imagery. Nowcast/forecast maps generated daily (image above)

Data-User Testimonials

"The SCCOOS and CeNCOOS HAB data is an invaluable tool that offers our response, clinical and pathology teams critical information to better evaluate if stranded marine mammals are affected by domoic acid intoxication in order to administer the best possible care and treatment for these animals."

— *Dr. Dominic Travis*, Chief Programs Officer,
The Marine Mammal Center

"Channel Islands Marine & Wildlife Institute (CIMWI) uses SCCOOS and CeNCOOS HAB data, C-HARM model, & CA HAB Bulletin to monitor domoic acid along the California coast in order to be at the ready to respond to marine mammals affected by increased levels of domoic acid."

— *Ruth Dover*, Managing Director,
Channel Islands Marine & Wildlife Institute