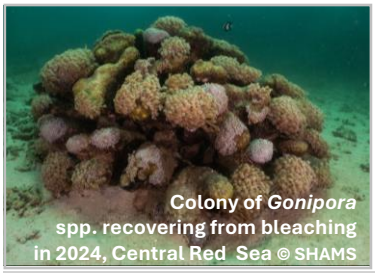
Red Sea – Coral Bleaching Alert

DATE OF THIS ALERT: 11 August 2025

SHAMS kindly requests you forward any photos or comments on bleaching sightings to:
Email: RedSeaReefWatch@shams.gov.sa


Colony of *Gonipora* spp. recovering from bleaching in 2024, Central Red Sea © SHAMS

11 August 2025 – Coral bleaching forecast – Red Sea (of KSA)		
Region:	**Alert:**	**Bleaching Observation**
Northern Red Sea (NRS)	**"Warning"**	**Possible risk of bleaching**
Central Red Sea (CRS)	**"Warning"**	**Possible risk of bleaching**
Southern Red Sea (SRS)	**"Warning"**	**Possible risk of bleaching**

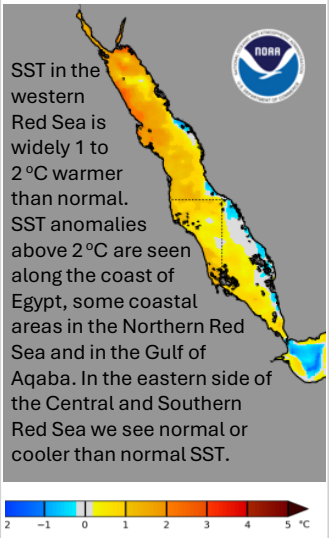
Global and regional indicators:. The 4th global coral bleaching event declared on 15th of April 2024 has not ended. Between 1st January 2023 and 10th May 2025 heat stress at levels likely to cause bleaching has impacted 83.9 % of the world's coral reefs, and this proportion may continue to rise. In 2025, coral bleaching and higher than average sea surface temperatures (SST) were seen in the Western Indian Ocean (WIO). A similar pattern preceded bleaching in the Red Sea in June 2024 and 2023.

Please be vigilant and report coral condition, especially any bleaching. Photos can be sent to RedSeaReefWatch@shams.gov.sa or complete our questionnaire (QR code):

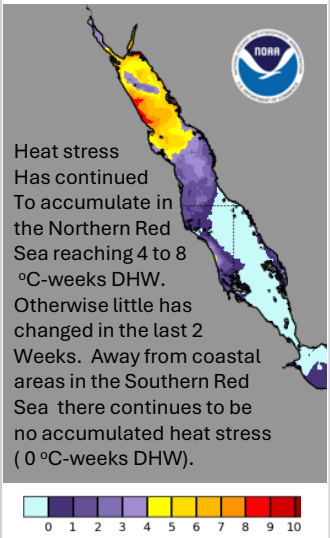
Impact of weather:
Local and regional weather, particularly wind patterns can influence sea surface temperatures and thermal stress experienced by corals.

Predictions for the next 10 days indicate winds will remain below 20 kt for most of the Red Sea and are unlikely to result in significant mixing and cooling of surface waters.

NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 9 August 2025

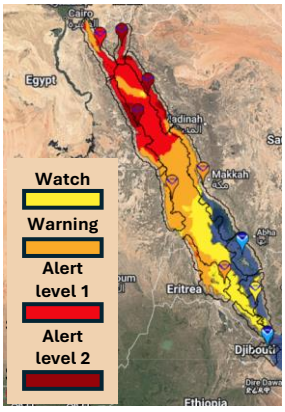


NOAA Coral Reef Watch Daily 5km Degree Heating Weeks (v3.1) 9 August 2025



NOAA Virtual stations:

Northern Red Sea (NRS): SST decreased slightly in the last 2 weeks but are still above normal by 1.8 °C in the Gulf of Suez, 2.4 °C in the Gulf of Aqaba, 2.3 °C in Egypt and 2.3 °C in Tabuk. Thus, temperature stress has continued and DHW now ranges from 6.3 to 9.0 °C-Weeks.



Central Red Sea (CRS): In the last 2 weeks SST has decreased slightly in Sudan to 1.3 °C above normal, and Al Madinah and Mekkah to 0.7 °C above normal. However, temperature stress has continued to accumulate and DHW of 2.8 °C-Weeks is seen for Sudan and 2.9 °C-Weeks is seen for Al Madinah and Makkah.

Southern Red Sea (SRS): SST decreased slightly in the western SRS and for Eritrea is 1.4 °C above normal. In the East of the SST increased slightly to 0.4 °C above normal for Jazan, and 0.6 °C above normal for Western Yemen. DHW increased to 3.2 °C-Weeks in Eritrea, and has not changed at 1.8 °C-Weeks for Jazan and 0.5 °C-Weeks for Yemen.

Summary: As we experience the warmest months of the year, warnings for coral bleaching remain in place for all regions of the Red Sea. Sea surface temperatures continue to be higher than normal in the Northern and Central Red Sea as well as at the western side of the Southern Red Sea. As a result, it is in these areas that prolonged thermal stress is likely to affect corals and we may see coral bleaching. However, SHAMS has currently not received reports of coral bleaching. Please report the condition of coral reefs near you, whether healthy or bleached coral is observed.

CORDIO

shams General Organization for Conservation of Coral Reefs and Turtles in Red Sea

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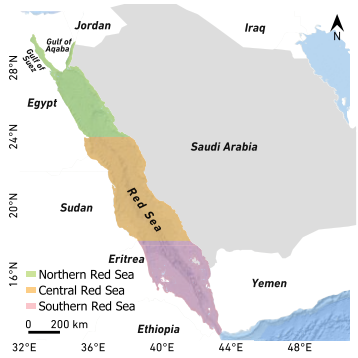
NOAA CORAL REEF WATCH



Bleaching alerts and observations are reported for regions of the Red Sea that have been defined based on history of SSTs and knowledge of the local oceanography. Three regions are identified:

NRS – Northern Red Sea: (includes Gulf of Aqaba), approximates cooler temperate conditions that are the most variable in the Red Sea. Highest salinity. Receives ~ 65 % of dust inputs to Red Sea, which can have a cooling effect.

CRS – Central Red Sea: Mid point for North to South temperature and salinity gradients.

SRS - Southern Red Sea: The southerly and warmest region of the Red Sea, with salinity most similar to the Indian Ocean. Salinity begins to increase northwards.

Alert levels

Alerts are based upon both the Coral Bleaching HotSpot and Degree Heating Week (DHW) metrics, which are calculated from sea surface temperature that are measured daily by satellite for areas (pixels) of 5km by 5km.

"Bleaching Warning" – Indications of warmer conditions than normal with a risk of possible bleaching.

"Bleaching Alert Level 1" – Risk of reef-wide bleaching.

"Bleaching Alert Level 2" – Risk of reef-wide bleaching with mortality of heat-sensitive corals.

Sources of information

- https://www.noaa.gov/news-release/noaa-confirms-4th-global-coral-bleaching-event
- https://www.coralreefwatch.noaa.gov/satellite/research/coral_bleaching_report.php
- http://coralreefwatch.noaa.gov/
- https://cordioea.net/coral-reef-research/vulnerability/indian-ocean-coral-bleaching/
- https://www.coralreefwatch.noaa.gov/product/5km/index_5km_baa-max-7d.php
- Windy.com
- Voolstra C.R. & Berumen Eds. (2024) Coral Reefs of the Red Sea, Springer https://doi.org/10.1007/978-3-030-05802-9

Global indicators

Local temperatures are affected by global and regional trends. With global warming, temperatures are expected to rise over longer periods (decades), but significant variation can occur between years, and under the influence of regional and multi-year factors such as ocean-atmosphere interactions across the Pacific and Indian Ocean.

Sea Surface Temperatures (SST)

Satellites accurately measure the temperature of the surface of the sea, producing maps that allow for spatial predictions of thermal stress and bleaching. Nighttime-only satellite SST observations are used to reduce the influence of daytime warming caused by solar heating at and near the sea surface and to avoid contamination from solar glare. The nighttime SST measurements provide more stable estimates of heat stress conducive to coral bleaching.

Coral Bleaching HotSpot

Is based upon the SST Anomaly observations but highlights where the SST is above the Maximum Monthly Mean (MMM) temperature for a location https://coralreefwatch.noaa.gov/product/5km/tutorial/crw09a_hotspot_product.php

Degree Heating Week (DHW)

The DHW is a measure of how much heat stress has accumulated over the previous 12 weeks. Higher than normal SST are summed when they are above or equal to 1 °C above the highest normal temperature for a year, which is considered the bleaching threshold.

Wind driven mixing of sea surface waters

Wind plays an important physical role in influencing conditions conducive to coral bleaching. Wind-driven mixing reduces seawater temperatures resulting in less thermal stress to corals. Wind also creates waves that scatter solar radiation also reducing additional stress to corals. Storms and strong winds result in greater mixing and reduce the likelihood of bleaching.
Calm periods are likely to result in less cooling from mixing and greater stress to corals from solar radiation.

Dust

Dust influences the Red Sea marine environment, particularly in the northern regions. Dust can shade and absorb heat resulting in the cooling of seawaters and lower heat and solar radiation stress to corals.

El Niño/Southern Oscillation (ENSO)

The El Niño/Southern Oscillation (ENSO) is an important coupled ocean-atmosphere phenomenon that causes global climate variability on interannual time scales. 2023-2024 has been an El Niño event.

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