Red Sea – Coral Bleaching Alert

DATE OF THIS ALERT: 25 August 2025

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


Colony of *Porites* sp. partly impacted by bleaching in 2025, Central Red Sea © SHAMS

25 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)	**"Watch"**	**Low risk of bleaching**

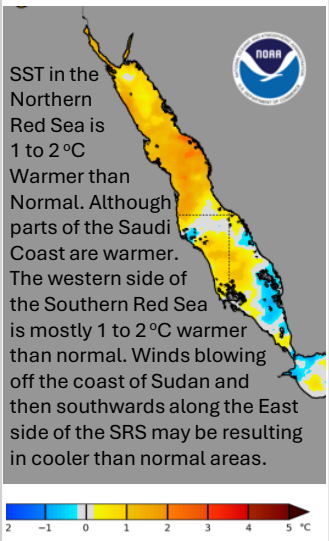
Global and regional indicators:. The 4th global coral bleaching event declared on 15th of April 2024 has not ended. Between 1st January 2023 and 10th May 2025 heat stress at levels likely to cause bleaching has impacted 83.9 % of the world's coral reefs, and this proportion may continue to rise. In 2025, 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):

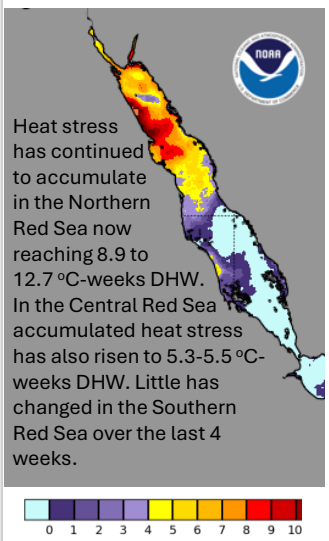
Impact of weather:
Local and regional weather, particularly wind patterns can influence sea surface temperatures and thermal stress experienced by corals.

Predictions for the next 10 days indicate winds will often be stronger than 20 kt in the Northern and Central Red Sea which is likely to result in the mixing and cooling of surface waters.

NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 22 August 2025

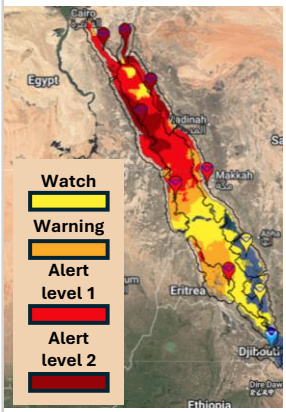


NOAA Coral Reef Watch Daily 5km Degree Heating Weeks (v3.1) 22 August 2025



NOAA Virtual stations:

Northern Red Sea (NRS): SST decreased slightly again but are above normal by 1.67 °C for the Gulf of Suez, 1.65 °C for the Gulf of Aqaba, 1.63 °C for Egypt and 1.8 °C for Tabuk. Thus, temperature stress has continued and DHW increased to between 8.7 and 12.7 °C-Weeks.



Central Red Sea (CRS): In the last 2 weeks SST has increased 0.2 °C in Sudan to 1.5 °C above normal, and by 1.4 °C for Al Madinah and Mekkah to 2.1 °C above normal. Accumulated temperature stress has risen to DHW of 5.3 °C-Weeks for Sudan and 5.5 °C-Weeks for Al Madinah and Makkah.

Southern Red Sea (SRS): SST have decreased in the western SRS and are only slightly above normal for Eritrea at 0.9 °C. In the East of the SRS, SST remains 0.4 °C above normal for Jazan, and is now below normal by 0.2 °C for Western Yemen. DHW increased from 3.2 to 4.1 °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 continue to experience the warmest months of the year, warnings for coral bleaching remain in Northern and Central Red Sea where sea surface temperatures continue to be higher than normal and temperature stress has continued to accumulate. These areas may be close to bleaching but there are no reports of bleaching occurring yet. The Southern Red Sea has mostly cooled over the last couple of weeks and there is a decreased risk of bleaching there. Please report the condition of coral reefs near you, whether bleached or not bleached coral is observed.

CORDIO

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

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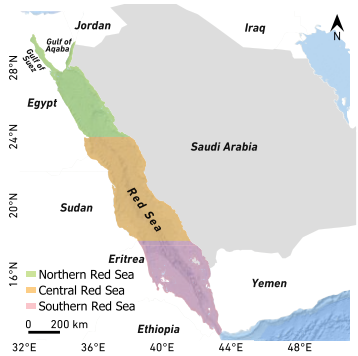
NOAA CORAL REEF WATCH



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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