CURRENT STATUS: 9 Aug 2017: **BLEACHING WATCH**

**TRINIDAD & TOBAGO BLEACHING STATUS:**
We are approaching the Peak Season of Trinidad and Tobago’s Coral Bleaching Season. Currently, T&T is under BLEACHING WATCH/WARNING (yellow-orange status in Fig. 1a & b) and the Sea Surface Temperature trend is neutral with some adjacent patches of heating (up to +1.0) and cooling up to -1.0°C.

**INDEX SUMMARY**
- SST: 29.037°C
- HS: 0.000
- SSTA: 1.282
- DHW: 0.000
- SST is above the July Monthly Mean SST Climatology
- SST is below the Bleaching Threshold of 29.8°C

**BLEACHING OUTLOOK:**
**WEEKS 1-4:** Heat Stress is expected to accumulate in September, increasing the Alert Status to Bleaching Warning Level (Figs. 2a & 2b).

**WEEKS 5-8:** October Heat Stress is expected to increase to the ALERT LEVEL 1, with an area of WARNING Level stress (See Figs. 3a & 3b).

**WEEKS 9-12:** Heat Stress during November is expected to persist at ALERT LEVEL 1 with a patch of ALERT LEVEL 2 Stress east of Trinidad & Tobago. (See Figs. 3a & 3c)

NOAA-CRW 1 AUG 2017 OUTLOOK 2b: September (1-4 Weeks); 3b: October (5-8 Weeks) & 3c: November (9-12 Weeks)
Reef Requirements

Reefs are highly sensitive organisms that occupy a particular niche and require specific conditions with respect to the following parameters: salinity, temperature, depth, turbidity and nutrients:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conditions</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Salinity</td>
<td>32—42 ppt</td>
<td>Measurement of dissolved salt content expressed in parts per thousand by weight.</td>
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<tr>
<td>Temperature</td>
<td>20–32 ºC</td>
<td>Different species can tolerate different temperatures.</td>
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<tr>
<td>Light</td>
<td>Corals require sunlight for photosynthesis. Stony corals require more light than soft corals.</td>
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<tr>
<td>Depth</td>
<td>&lt;70 m</td>
<td>Deeper water has less sunlight available for photosynthesis.</td>
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<tr>
<td>Turbidity</td>
<td>LOW</td>
<td>Turbidity is a measure of the haziness of a liquid due to particles. High turbidity means less sunlight.</td>
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<tr>
<td>Nutrients</td>
<td>Calcium (Ca) 380-450 ppm, Strontium (Sr) 8-14 ppm, Iodine (I) 1250-1350 ppm</td>
<td>The process of nutrient cycling between corals, zooxanthellae and other reef organisms facilitates survival in nutrient poor waters. Coral reefs often also depend on other habitats such as seagrass and algae beds and mangrove forests in the surrounding area for supplemental nutrients via nitrogen rich dead plants and animals. Reefs in turn provide protection from storms and produce sediment for the mangroves and seagrass to root in.</td>
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<tr>
<td>Waves</td>
<td>Waves bring nutrients, oxygenate the reef and prevent excess sedimentation, therefore reefs are usually more common on eastern shores.</td>
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Reef Distribution in Trinidad & Tobago

Trinidad and Tobago’s coastal waters are influenced by the Venezuelan Orinoco River which pumps large amounts of sediment and freshwater into the marine environment, thereby limiting coral growth and distribution. The Orinoco River Delta, as seen in Figure 4, extends for approximately 400 km from the Gulf of Paria to the Boca Grande along the Atlantic Ocean and achieves peak flow in July. As shown in Figure 5, Trinidad is closer to and thus more susceptible to the influence, with reefs limited to the Northeast (Salybia, Toco and Rampanalgas) and to a few patch reefs in the northwest (Chacachacare, Huevos and Monos Islands and Macqueripe). Tobago, which is further from the influence of the Orinoco and thus has more stable conditions (sediment load, nutrients, salinity), has approximately 19 reef areas as indicated in Figure 6 on page 3.
As seen in Figure 7, we are in the Northern hemisphere’s Coral Bleaching Season and heat stress exists primarily north of the equator. There are 6 areas of ALERT LEVEL (1 OR 2) evident in the Global Bleaching Alert Status Map: 1. The Mediterranean Sea & the Black Sea (north and south of Turkey); 2. The Bay of Bengal near Bangladesh; 3. The Yellow Sea, the East China Sea and the Western Pacific Ocean (China, North Korea, South Korea, Japan & Taiwan); 4. The Pacific Ocean (near Mexico); 5. North Atlantic (east of the United States of America) and 6. The Equatorial Atlantic at the Amazonian River Mouth.

The **Global Outlook** predicts an increase in heat stress within the Northern hemisphere over the next 3 months. Conditions are expected to reach BLEACHING ALERT LEVEL. Status in the Caribbean Sea and the North Atlantic Ocean, and in the Pacific Ocean, particularly the central region and along Mexico.
**Regional Status:**

All of the Caribbean Basin is under CORAL BLEACHING WATCH and, as already discussed, Trinidad and Tobago is under BLEACHING WARNING/WATCH. However, areas of higher risk (BLEACHING ALERT 1/2) exist in the following areas: The Gulf of Mexico along the Yucatan Peninsula and at the Columbia-Panama Border. (ALERT LEVEL Stress also exists in Lake Maracaibo and Northeast of Bermuda.) Large areas of WARNING LEVEL STRESS exist within the Gulf of Mexico, surrounding Jamaica and the Bahamas, and around Trinidad and Tobago.

**Regional Outlook:**

Heat stress is expected to continue accumulating, raising the region’s threat level from Watch to WARNING. For some areas, including the majority of the Windward Islands, Belize, Honduras, Haiti and Columbia; the threat will raise to ALERT LEVEL 1. Mexico is expected to reach ALERT LEVEL 2.

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**Resources:**


Compiled by Asalma Abdullah-Muhammad