CURRENT CORAL BLEACHING IN MAURITIUS

Coral bleaching is a process by which corals lose their endosymbionts (or zooxanthellae), resulting in whitening of their tissues. Coral bleaching which is primarily triggered by elevated Sea Surface Temperature (SST) anomalies, often associated with the El Nino-Southern Oscillation (ENSO), has increased in frequency and extent over the past decades causing widespread bleaching episodes.

In Mauritius, the first bleaching event was reported in 1998 with loss of more than 10% of the island's live coral cover (Moothien Pillay *et al.,* 2002). From 2001 to 2016, Mauritius has suffered from a series of bleaching episodes ranging from selective or mild to massive bleaching resulting in loss of 2% to 56% of the remaining live coral cover in certain lagoons (Moothien *Pillay et al.,* 2001, 2002 & 2010; AFRC 2003, McClanahan 2004, MOI Ocean-Quest 2016).

The National Oceanic and Atmospheric administration (NOAA) had predicted a global coral bleaching episode for 2019 due to an ENSO event, expected to influence the weather and climate patterns in the South West Indian Ocean (SWIO) region, including Mauritius. To register this event on the reefs of Mauritius and assess the degree of bleaching of the reefs of Mauritius, the MOI is currently undertaking qualitative and quantitative bleaching surveys at its permanent reef study sites around the island (Fig.1).

Figure 1: Location where permanent reef study stations have been established with regards to MOI's Ecological Monitoring Programme (started in 2010)

Preliminary results from qualitative surveys undertaken at Ile aux Benitiers (and La Gaulette), Grande Rivière Sud-Est (including Eau Bleu and Bambous virieux), Le Morne and Flic en Flac, showed that >75% of coral colonies surveyed were either partially or totally bleached, with the genus *Acropora* (89%) being the worst affected (Fig.2).

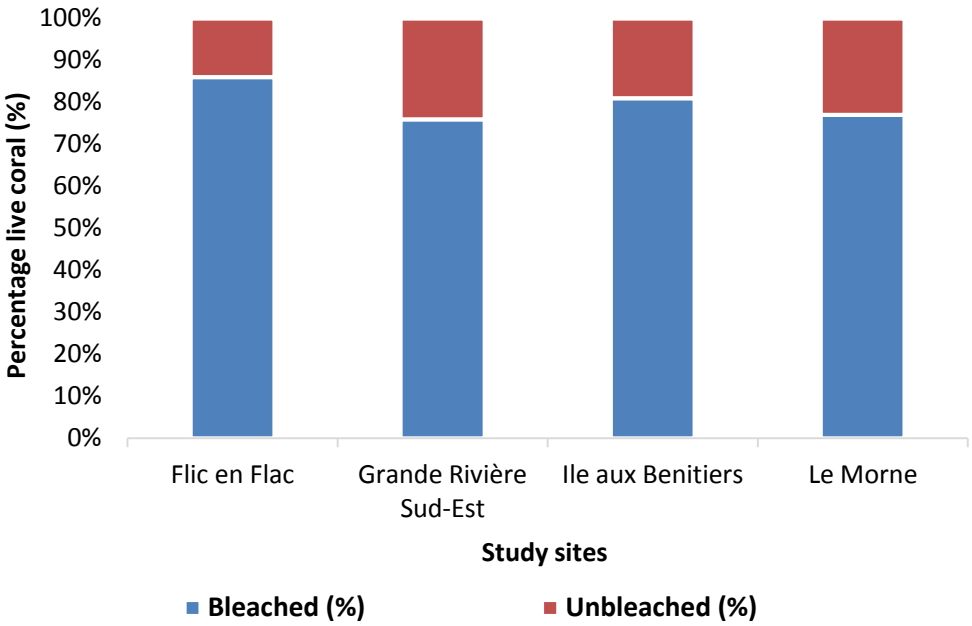

Figure 2: Graphical representation illustrating the % bleached and unbleached corals recorded during qualitative surveys of MOI's permanent stations

These results are further supported by qualitative assessments undertaken at the same sites. For instance, >80% of corals had bleached at Ile aux Benitiers and Flic en Flac with *A.muricata* (>95%), *A.cytherea* (>90%) and *A.selago* (>88%) being the worst affected species.

Although salinity levels monitored at the study sites were within the acceptable level for a healthy coral reef ecosystem, *in-situ* temperature measurements surveyed sites were well above the seasonal average of 29.0^0C (Fig.3).

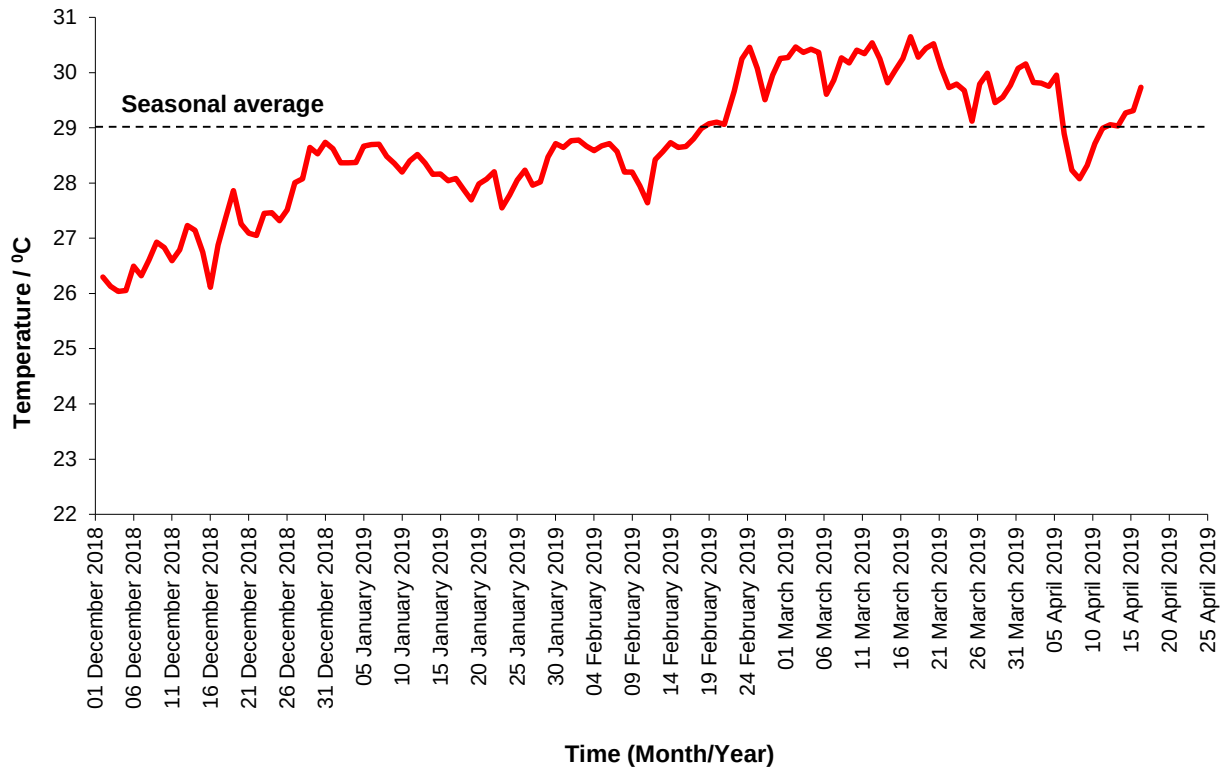

Figure 3: Mean daily temperature (^{0}C) recorded by MOI's in-situ temperature logger deployed in the lagoon of Ile aux Benitiers (depth <2.5m) from Dec-18 to Apr-19

The coral bleaching surveys at MOI's reef study sites are ongoing. These sites will be revisited after two months to assess the impact of bleaching on the reef system.