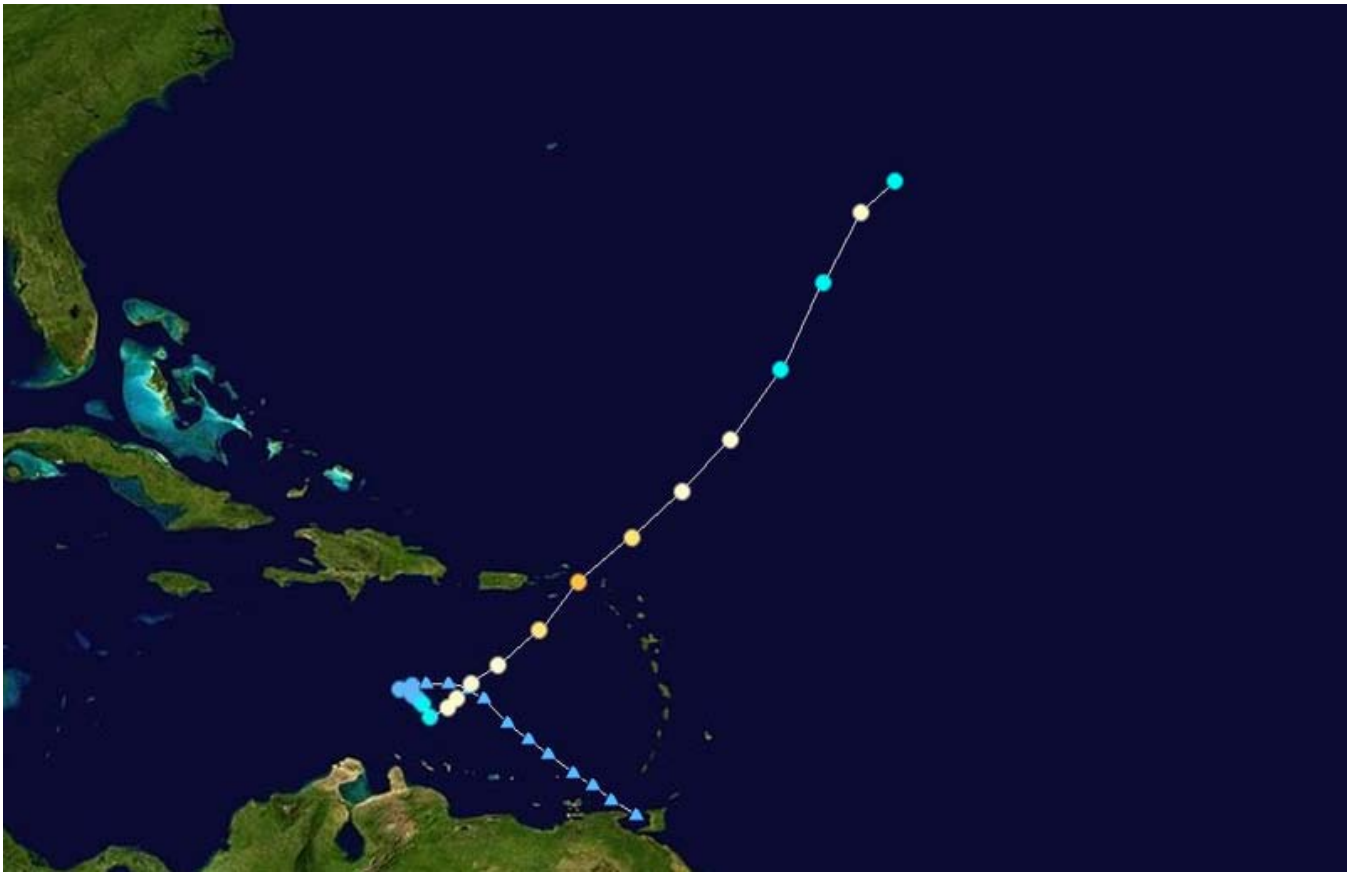
STICHTING NATIONALE PARKEN BONAIRE

Bonaire National Marine Park

Tropical Storm Omar; Report of Reef Condition



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On October 14 and 15, 2008 Tropical Storm Omar reached Bonaire. Wind speed averaging 18 to 20 knots from SW started at 3 am on October 14 and lasted for 48 hours. The minimum distance between the center of the storm and Bonaire was 200 Km in a NW direction and the maximum wind speed at that moment was 32 to 33 knots. (Rob Sint Jago-Harbor Master *personal comment)*

On the afternoon of Thursday, 16 October, 2008, Bonaire National Marine Park staff, interns and volunteers began underwater surveys to ascertain the status of the reefs surrounding Bonaire. Surveys continued on the following days through Monday.

A total of 27 sites were surveyed. In the West, from Karpata to Vista Blue on the leeward side of Bonaire (20 sites) and around Klein Bonaire (7 sites).

A quick survey method based on visual estimation of percentage of silt coverage, percentage of capsized coral heads and counting of capsized coral heads in 3 different size classes was used. The method was simple; swim for 10 minutes at 30m, 20m, 10m and shallower than 10 m counting capsized coral heads, estimating percentage of dislodged coral heads and estimating percentage of silt covering live coral or sponges. Results were recorder on a specially designed underwater spreadsheet.

Most observations indicated that in all sites surveyed, areas deeper than 15 to 20 m were covered with up to 75 % of silt. In addition, surveyors reported little-to-no mechanical damage in deeper areas of the reef.

In the shallows, approximately 0 to 15 meters, most of the observations reported less than 25 % silt covering coral or sponges with many reports of no silt covering the reef in the shallows. Furthermore, surveyors reported less than 50 % of coral damage in shallow with many observations in the 0 to 25 % range. The size class most affected were corals between 30 and 100 cm with a significant number bigger than 100 cm capsized in the central and the northern part of the Island

The sand on the sand beds between the drop-off and the rocky shores was completely removed by the waves exposing a mesh of cemented coral rubble. This rubble was visibly very impacted but not as a consequence of Tropical Storm Omar. A large number of coral recruit were attached to this coral rubble. These baby corals started to grow after hurricane Lenny and Ivan. Most of them are still attached to this coral rubble, and have survived.

The moment the sea became calmer, divers were able to enter the water safely to start the restoration work. Marine Park staff, employees from the Marine Park of St. Eustatius and St. Maarten who were in Bonaire on a DCNA staff exchange program, volunteers and dive shop staff started flipping over capsized coral heads. It was important to start as quick as possible doing this since most of the coral polyps would still be alive and will have a chance to survive if positioned properly.

Our next step is to remove debris from the reef. Since the hurricane season is not over yet, leaving the debris on the reef poses a high risk of further damage in the eventuality of another wind reversal.

Considering wind speed, wind orientation and duration of the storm, we predicted a more damaging panorama at first. After the survey was done, the damage produced by Tropical Storm Omar was less than we predicted.

During this event, Bonaire's reef lost a significant part of its adult coral population especially in shallow waters. The reefs of the Caribbean have been exposed to tropical storms and hurricanes for millions of years. These meteorological events are an important driving force in coral reef evolution. All scientific evidence shows that these meteorological events combined with bleaching events will become more frequent and stronger with global climate change. Based on this, the most important actions that we can take to ensure long term sustainability of Bonaire's reef are to manage water quality and ensure a sustainable stock of herbivores on our reefs.

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