

## PIGEON REEF

8°51'31.92"N, 114°39'21.93"E

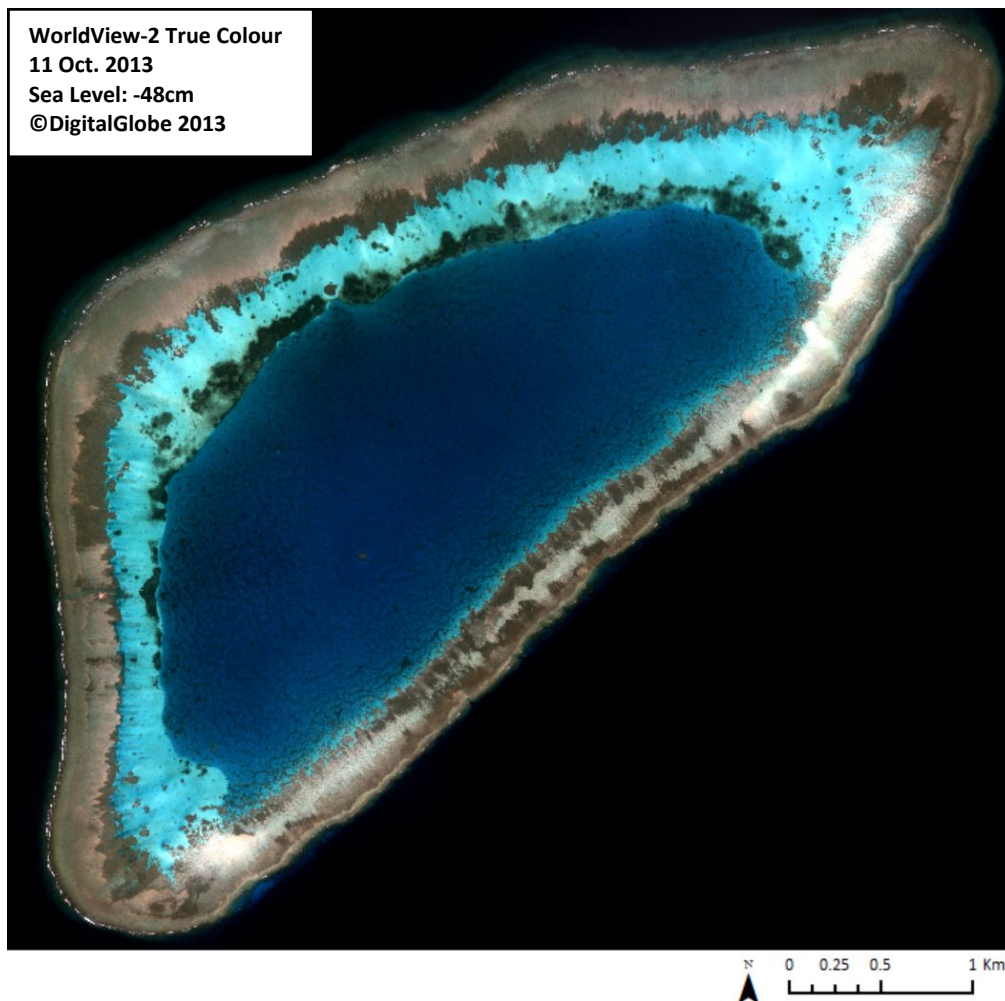
### **Geographic area**

Pigeon Reef is an oceanic coral atoll that developed on top of a seamount in the southern part of the Spratlys. It is located approximately 165NM north of the island of Borneo and around 150NM southwest of the island of Palawan. The closest shallow geographic feature is Cornwallis South Reef, 27NM west. This coral atoll extends 7km along its northeast-southwest axis and reaches just over 3km on its northwest-southeast axis.

### **Land area above water**

There are numerous above-water rocky strips in the 11 October 2013 satellite image that are located in the shallower parts of the reef flats along the northwest and southeast facing sides. However, this satellite image was captured when the sea level is estimated to have been 48cm below Mean Sea Level. The extent to which these above-water rocks are submerged at high tide, or Mean High Water Spring, where the sea level is expected to

WorldView-2 True Colour  
11 Oct. 2013  
Sea Level: -48cm  
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increase by 1.28m, is unclear given the lack of data on the height of these rocks. However, the very irregular shape of the above-water areas and the coral cover of the reef flat suggests that these uncovered areas may be living hard coral, in which case they would have to be covered at high tide.

### **Human infrastructure**

Two man-made structures have been constructed on the reef flat: one in the middle of the western facing side and the other on the southeastern side of the northeastern tip of the atoll. They are similar 10-15m diameter towers constructed on a wider 25-30m base. A 300m-long and 1.5m to 2m-deep channel has been dug in the reef flat next to the western tower to connect the open sea to the lagoon and an 80m-long but shallow channel is visible on the eastern side of the northeastern tower.

### **Intertidal and submerged area**

The aerial coverage of this atoll is 15.56km<sup>2</sup>, comprising a reef flat of 8.32km<sup>2</sup>, a lagoon of 5.93km<sup>2</sup> and a reef slope of 1.31km<sup>2</sup>. The reef flat is composed of two adjoining rings that surround the lagoon. The outer ring is a very shallow (less than 1m deep) or exposed band (where the rocky above-water strips are located) that is 15km long and 250m wide. Sections of this ring that are 66cm or less are expected to uncover at Lowest Astronomical Tide. The inner ring is the back reef, which is sand-dominated and is located between the shallow reef flat and the lagoon. It is 2-3m deep. Distinctive patches of seagrass/algae/cyanobacteria are visible on the northern back reef, along the lagoon; they total an area of 0.52km<sup>2</sup>. The lagoon is 5.5-7m deep and characterized by a dense reticulate reef system throughout that connects shallow coral heads in continuous sections that can be several hundred metres long. The visible part of the reef slope is narrow all around despite being wider on the northwestern side where it extends 100-150m. By contrast, it does not exceed 50-100m on the west and southeastern sides. The great depth of the surrounding seabed suggests that the reef slope is likely to be very steep. Pronounced spurs and grooves can be seen all throughout.

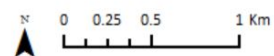
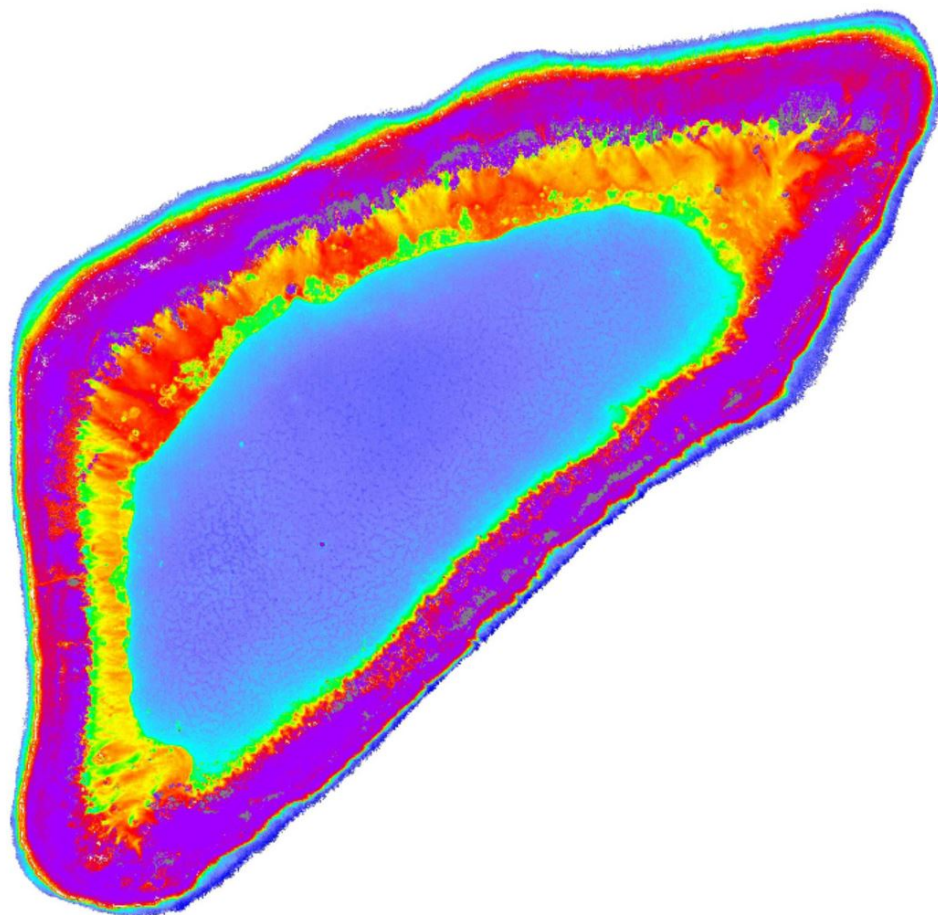
No dredging marks are visible in the 11 October 2013 and 1 February 2015 satellite images.

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Derived from WorldView-2 satellite data captured on 11 October 2013 [Sea Level: -48cm]

### Bathymetry Map



### Habitat Classification and Land Cover Map

