

Climate and Oceanographic Summary, Great Australian Bight 2018 - 10

Kirsten Rough – 8th February 2018

Summary:

The GAB continues to warm progressively at the sea surface. Conditions are highly suited to wide range of fish sizes over a very wide area.

Longer-term forecasts continue to indicate this situation will remain well into the March, with best conditions contracting in area from mid to late March.

Upwelling continues to be a very prominent feature on satellite images. The most recent pulse was particularly strong, and is influencing fish distribution.

Chlorophyll levels remain ideal for SBT across a very wide area of the GAB, though upwelling is leading to dirty water at some locations.

Forecast Sea Surface Temperature (SST) and SBT Habitat:

Conditions continue to warm over a broad area of the GAB. The preferred habitat distribution last week and now is shown in Figure 1. These images show the influence that upwelling can have; the recent very strong event has lead to more clearly defined regions for SBT aggregations (more detail on this below).

The updated **medium to long-term forecasts** of conditions in the GAB are shown in Figure 2. These are indicating the upwelling will continue to be a significant influence of conditions for the remainder of this fishing season. Recent changes due to upwelling are discussed below.

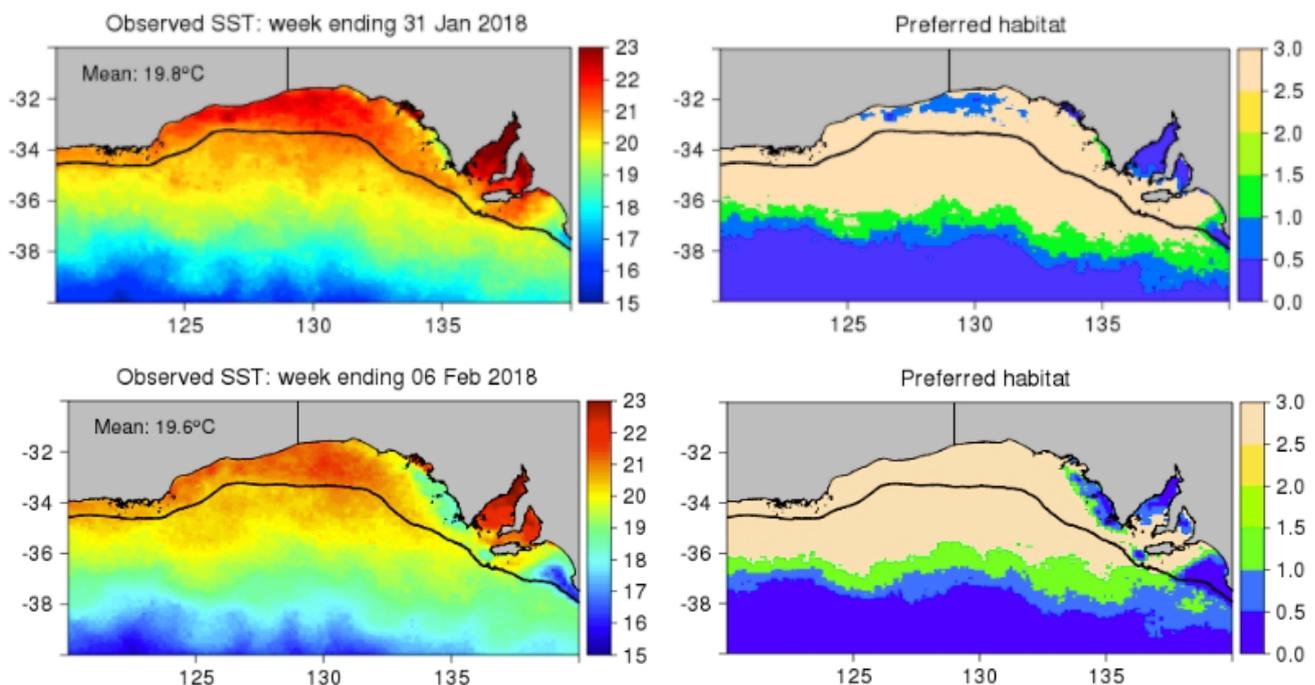


Figure 1: Sea Surface Temperature and SBT Habitat over last week to 31st January 2018 (top) and more recently to 6th February 2018 (bottom) (CSIRO 2018 - GAB Forecasting Website)

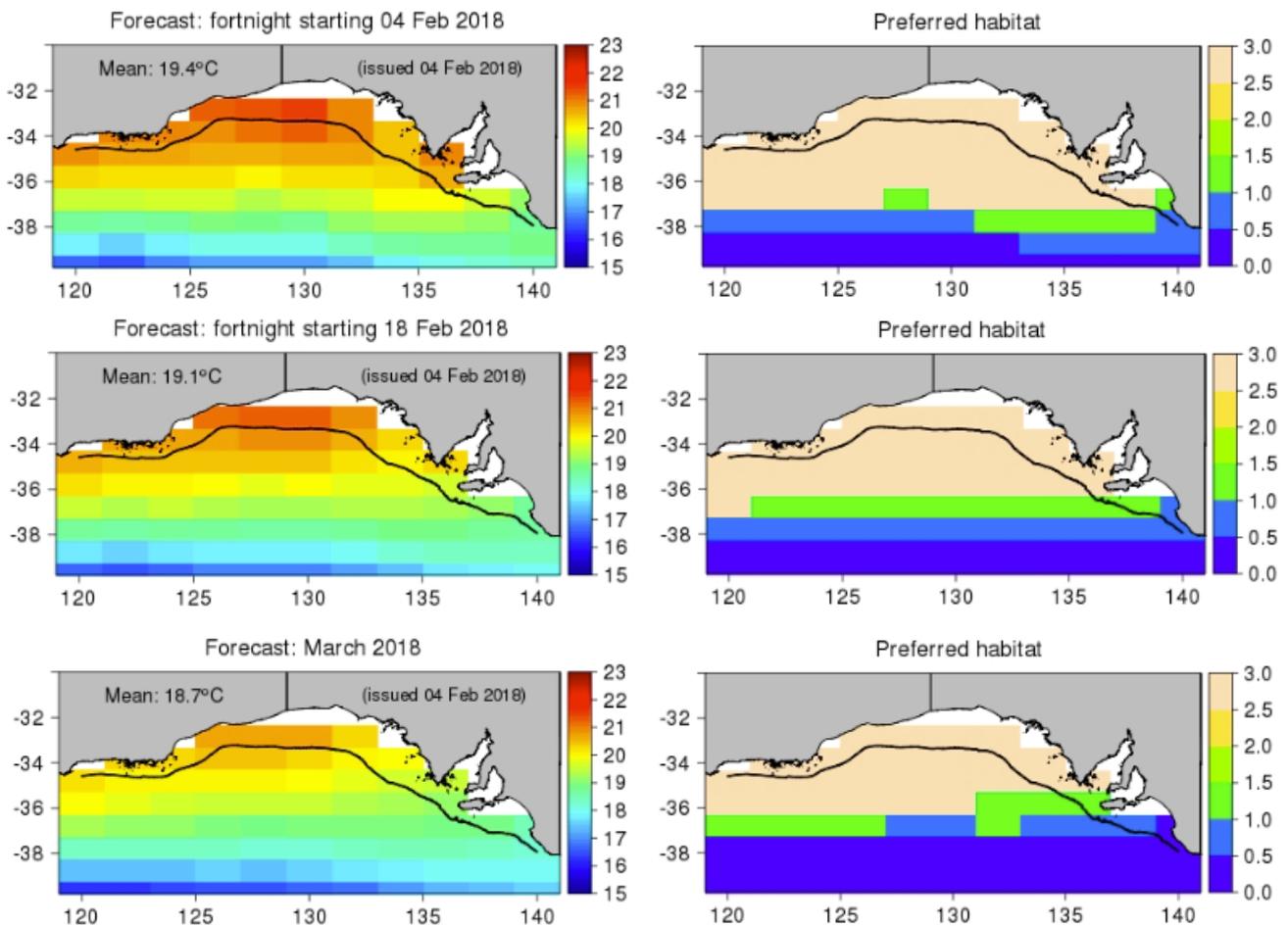


Figure 2: Longer term forecasts of Sea Temperature and SBT habitat issued on 4th February for the first half of February (top), the second half of February (middle) and the situation from mid March (bottom) (CSIRO 2018 – GAB Forecasting Website).

GAB Sea Surface Temperature (SST):

The broader GAB area continues to warm with the influence of local weather and warm currents feeding in from the west (Figure 3). The recent upwelling starting at the end of January and continuing through this week has pushed a significant amount of cold water onto the shelf (Figure 4). This is leading to well-defined areas suitable for SBT to aggregate at the sea surface and is enabling a clear corridor of warm water between Sanders and other fishing locations south of Kangaroo Island. Higher resolution maps are shown in Figure 6 and Figure 7 - please note that colour scale bars shown on each image are only applicable to that image.

How the sea surface temperatures for the month of January and February compare with previous seasons is shown in Figure 5.

Plots of sea floor temperature are shown in Figure 8 and Figure 9. The recent upwelling is having a major influence on sea floor temperatures.

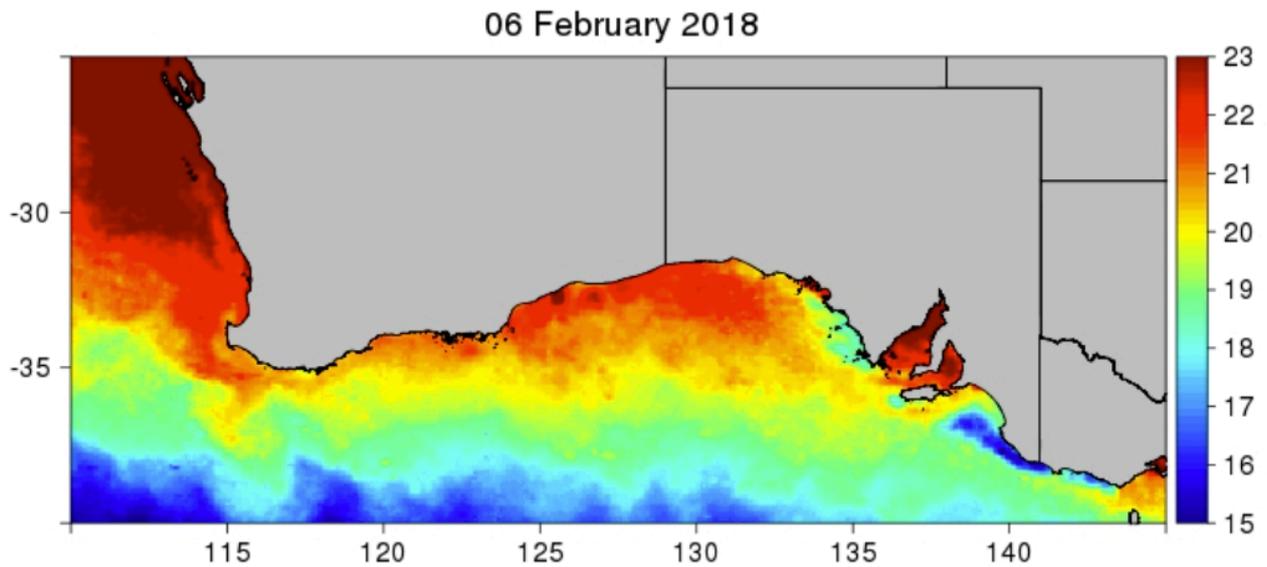


Figure 3: Sea Surface Temperature across southern Australia over the past week (CSIRO 2018 - GAB Forecasting Website)

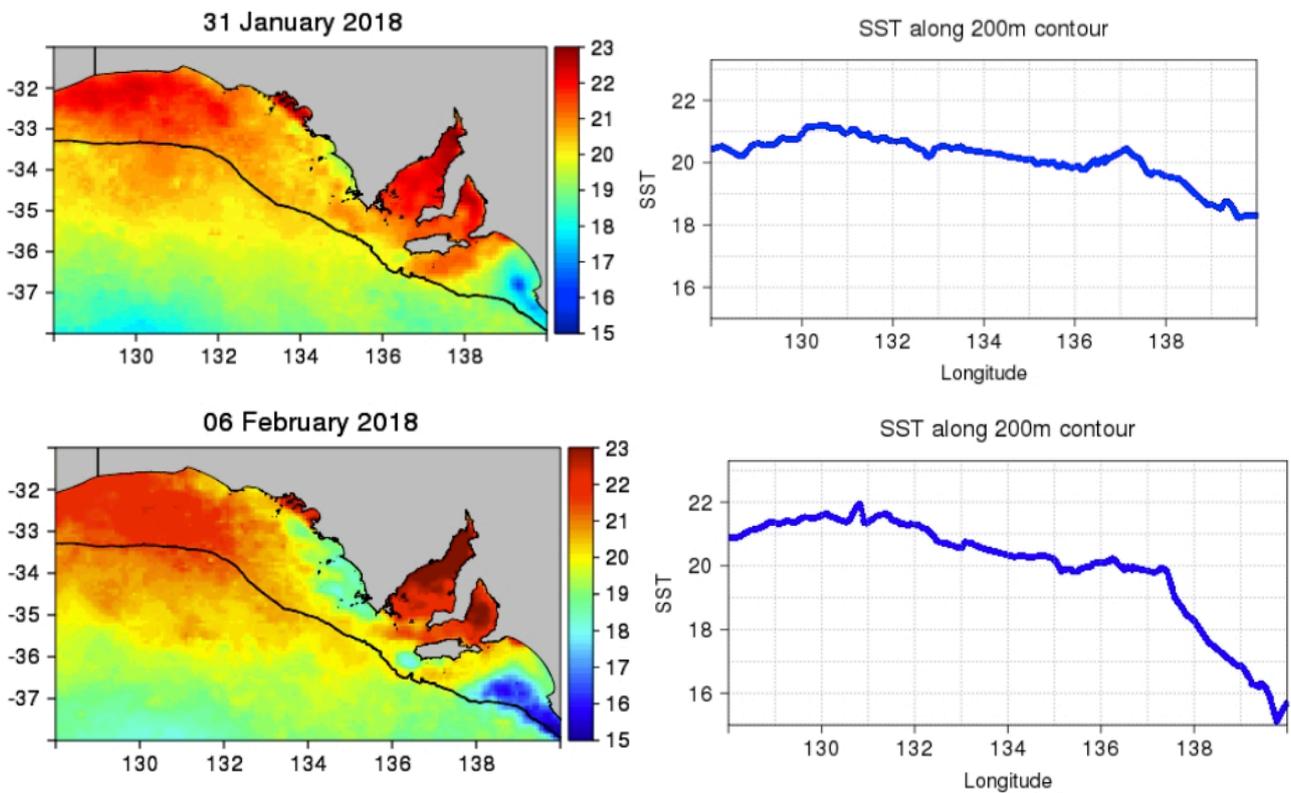


Figure 4: SST satellite image between longitudes 128° to 140°E (left) and corresponding graph of SST along the shelf break (right). Top image is the situation at the end of January; the bottom image is now, after the recent significant upwelling (CSIRO 2018 - GAB Forecasting Website)

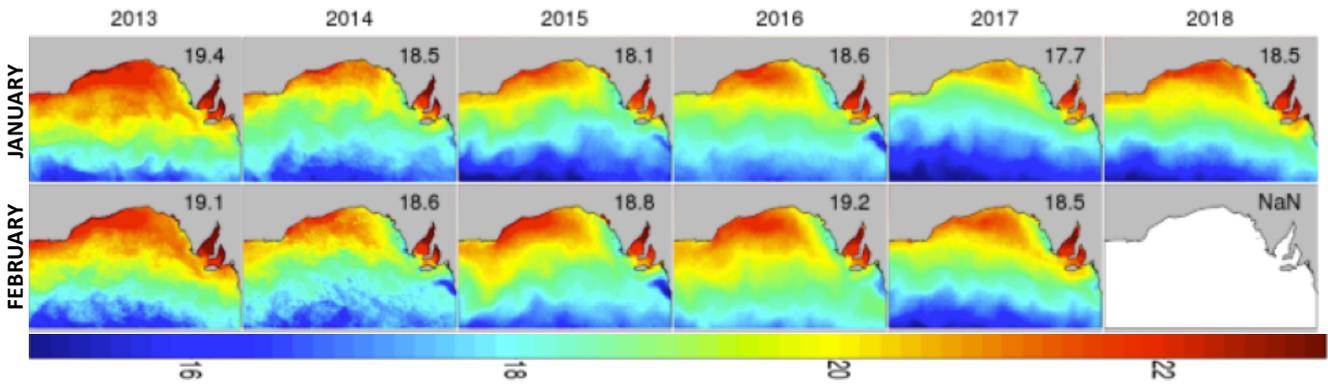


Figure 5: Average Sea Surface Temperatures for the month of January (top) and February (bottom) for 2018 and the previous 5 years (CSIRO 2018 – GAB Forecasting Website)

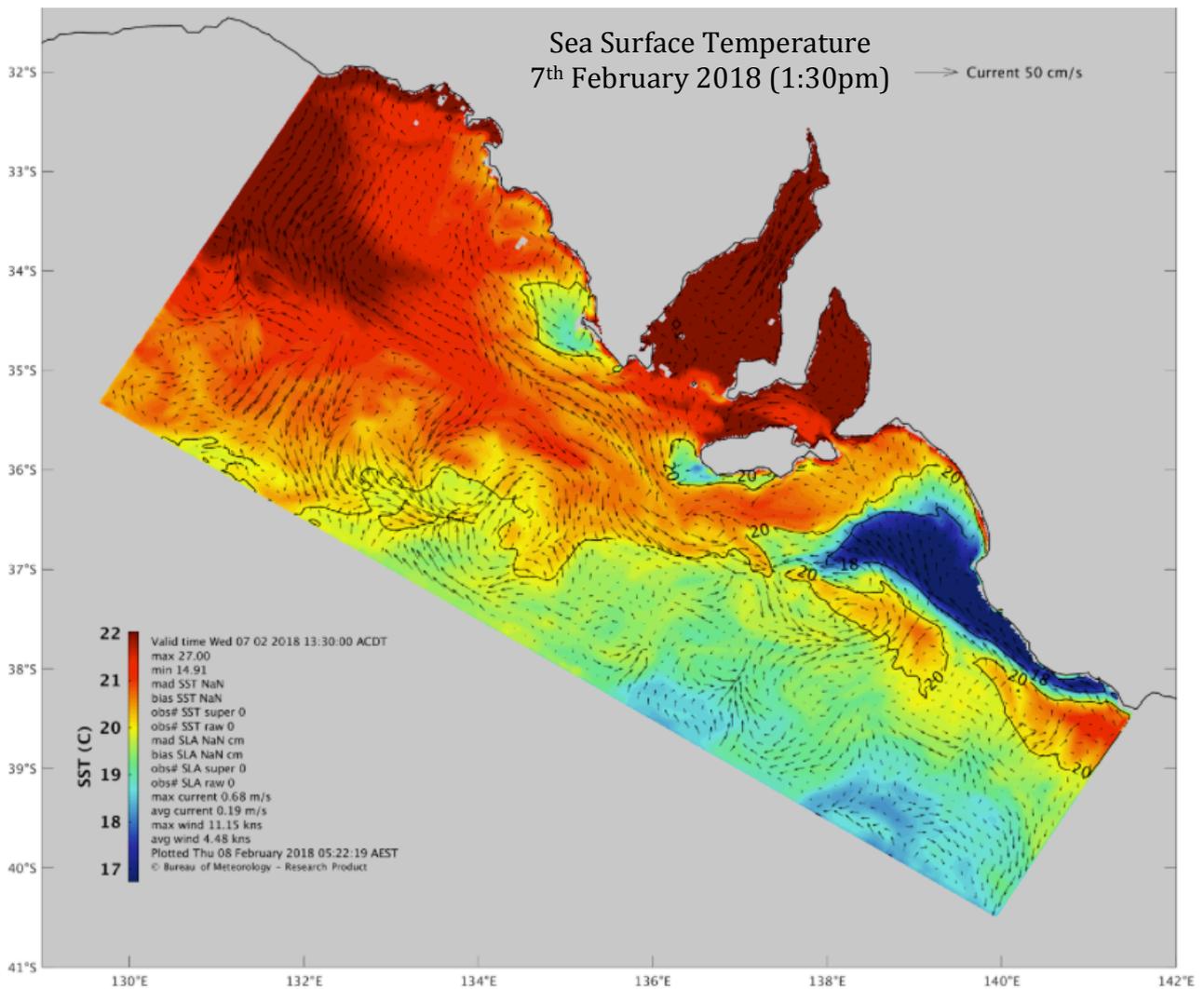


Figure 6: Sea Surface Temperature and water current direction on 7th February 2018. The 18 and 20°C temperature contours are marked by solid black lines, the direction and strength of the water currents are indicated by the black arrows. Note the scale bar changes between these images (SARDI-BoM 2018 – eSA Marine website).

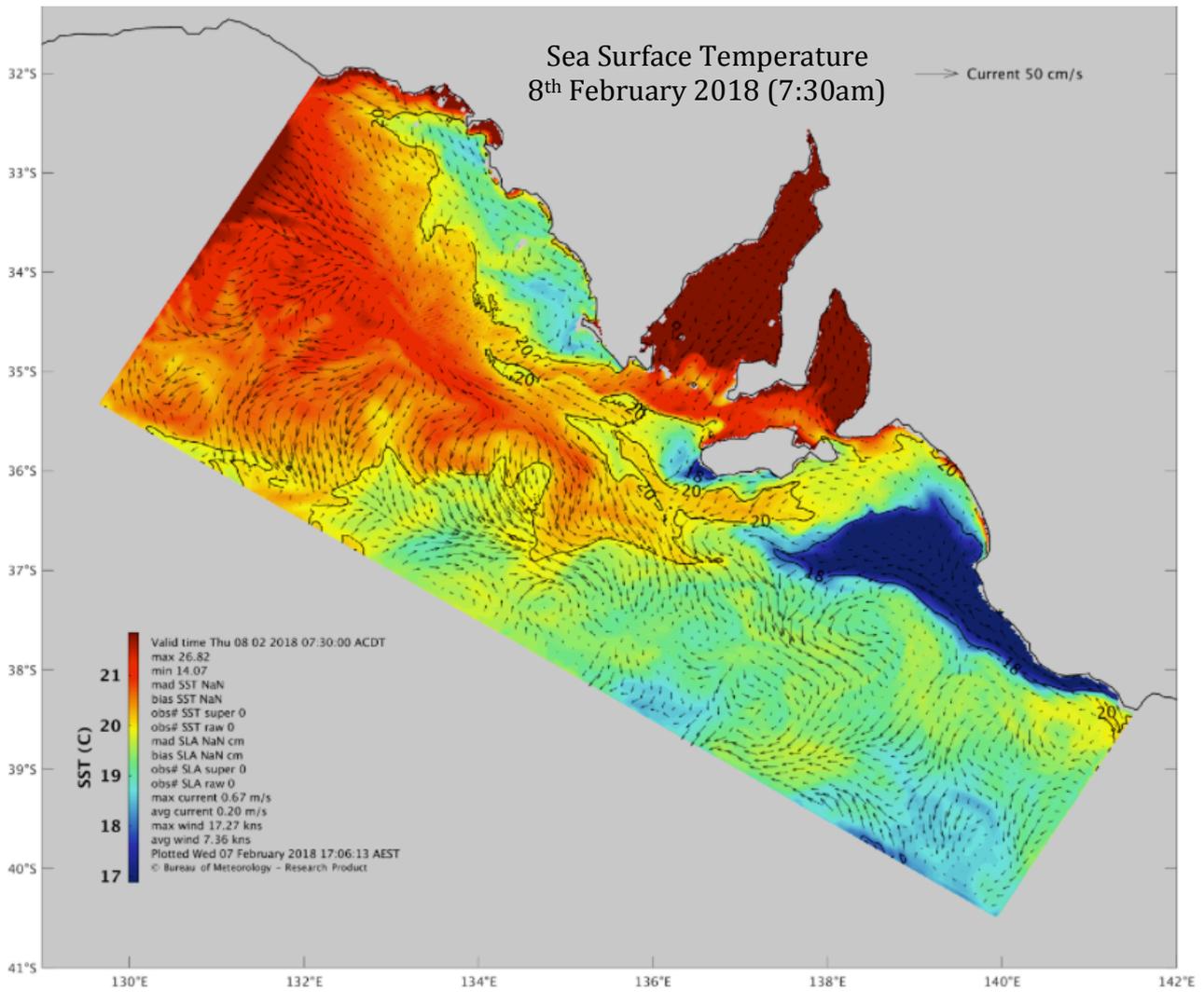


Figure 7: Sea Surface Temperature and water current direction on 8th February 2018. The 18 and 20°C temperature contours are marked by solid black lines, the direction and strength of the water currents are indicated by the black arrows. Note the scale bar changes between these images (SARDI-BoM 2018 – eSA Marine website).

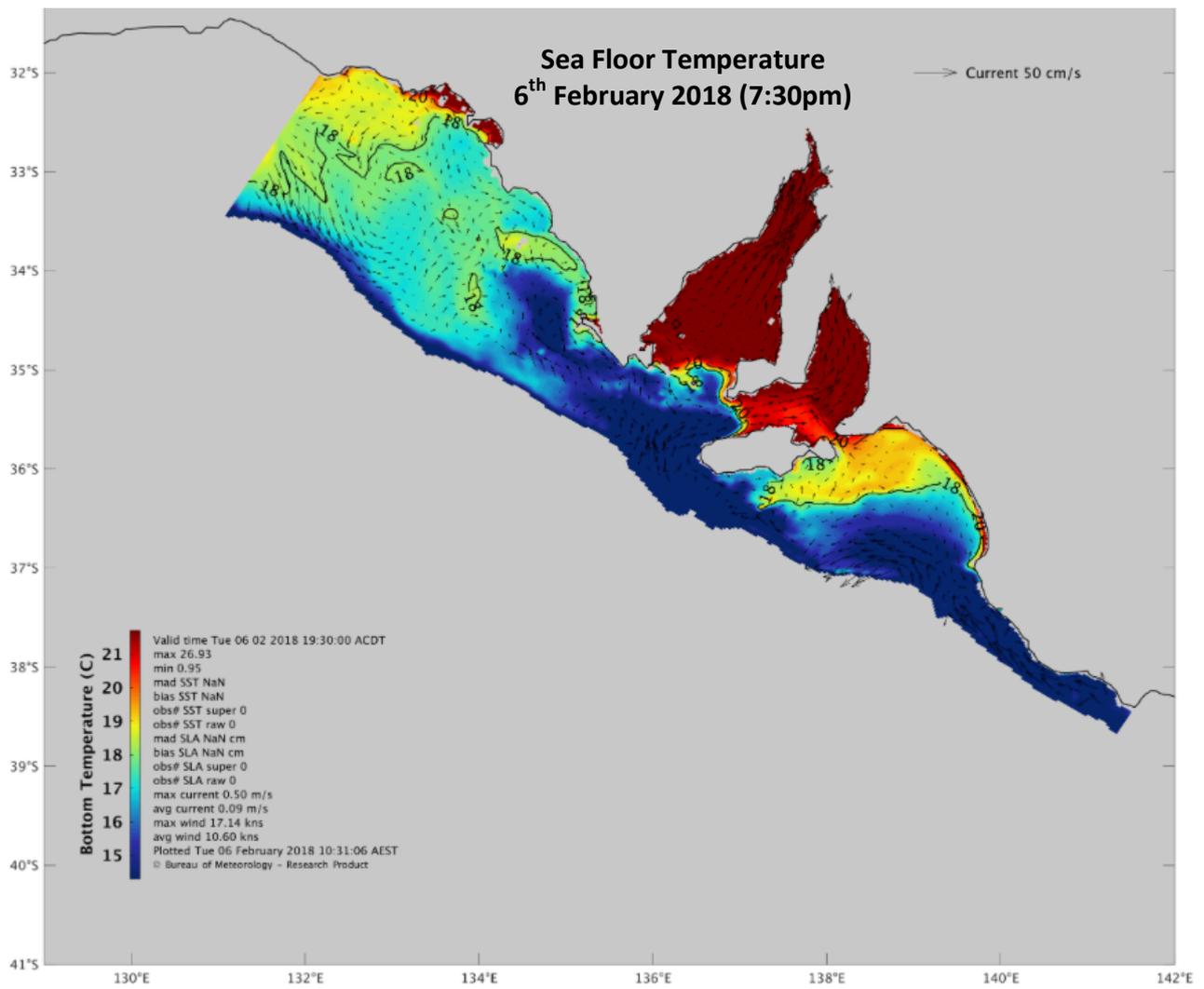


Figure 8: Sea Floor Temperature and water current direction on 6th February 2018. The 18 and 20°C temperature contours are marked by solid black lines, the direction and strength of the water currents are indicated by the black arrows. Note the scale bar changes between these images (SARDI-BoM 2018 – eSA Marine website).

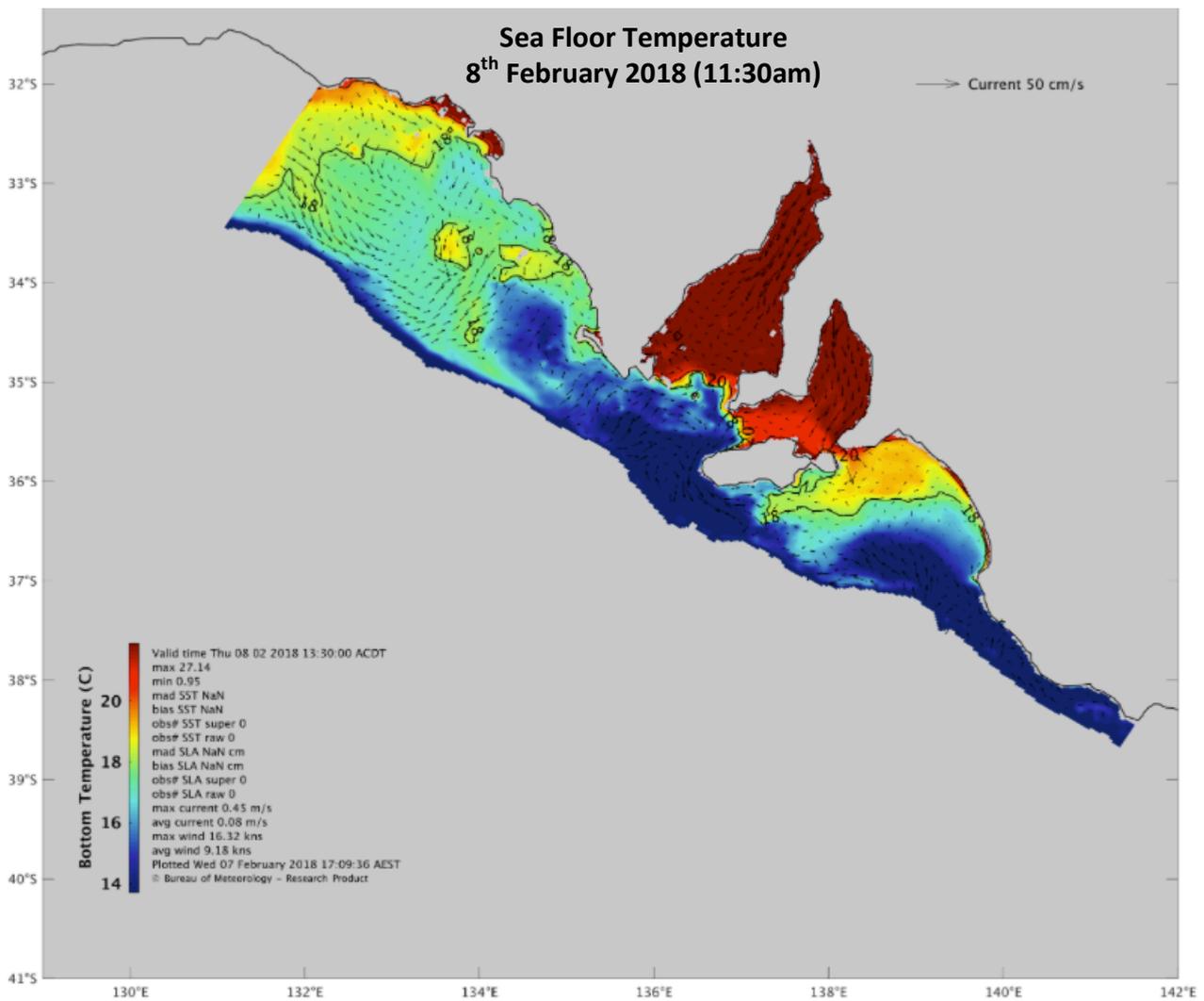


Figure 9: Sea Floor Temperature and water current direction on 8th February 2018. The 18 and 20°C temperature contours are marked by solid black lines, the direction and strength of the water currents are indicated by the black arrows. Note the scale bar changes between these images (SARDI-BoM 2018 – eSA Marine website).

Chlorophyll / Productivity Levels:

Low cloud is continuing to interfere with this satellites’ view; the best recent images are shown in [Figure 10](#). Conditions continue to be highly suited to SBT over much of the GAB, however water is becoming dirtier in the immediate vicinity of regions experiencing upwelling. From the air, the outer edges of the large upwelling area adjacent to the Bonney Coast appears milky; where upwelled water has been at the sea-surface for a longer period of time it appears as a muddy brown. The very recently upwelled water at the centre of the event this week currently appears as a beautiful deep blue; this will take on a dirtier appearance once the microalgae has had a chance to increase in abundance.

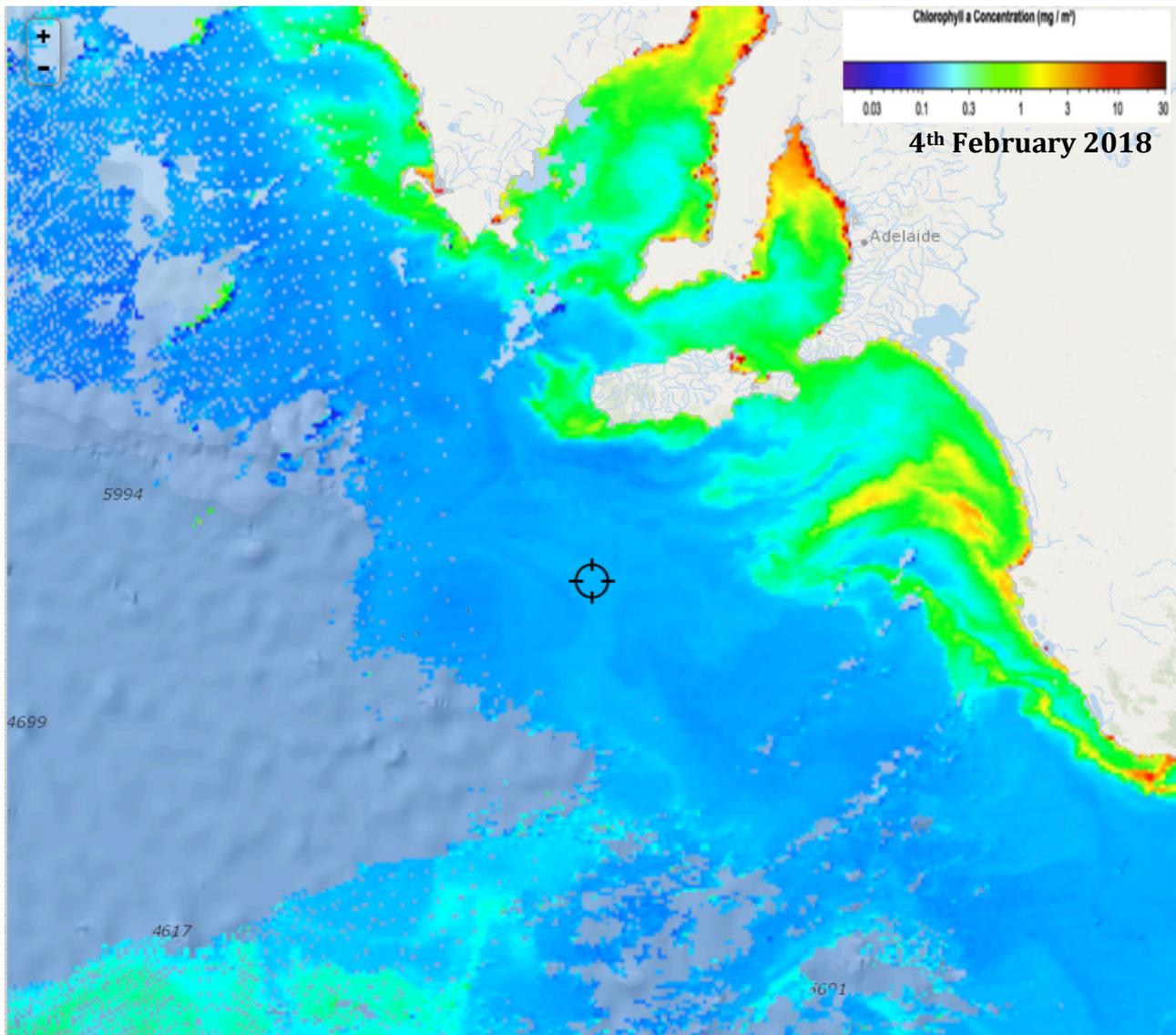


Figure 10: Chlorophyll plot from the Great Australian Bight taken on 4th February 2018, the grey areas have no readings due to cloud cover.

Relevant Websites:

GAB SBT Habitat Forecasts: <http://www.cmar.csiro.au/gab-forecasts/env-observed.html>

eSA Marine: http://pir.sa.gov.au/research/esa_marine/sarom

IMOS ocean monitoring: <http://oceancurrent.imos.org.au/index.php>

Bureau of Meteorology: <http://www.bom.gov.au>

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