

Climate and Oceanographic Summary, Great Australian Bight 2018 - 9

Kirsten Rough – 2nd 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 is particularly strong. Please note that this latest pulse has led to a shift in the colour scale bar of the fine-scale forecast website - this makes upwelling appear even more dramatic in this update.

Chlorophyll levels remain ideal for SBT across a very wide area of the GAB.

Forecast Sea Surface Temperature (SST) and SBT Habitat:

Conditions continue to warm over a broad area; the current habitat distribution is shown in Figure 1, and a comparison for a similar point in time last season in Figure 2. And as an indicator of fish distribution through the Aerial Survey area up until this point in time last year - I have included the summary of sightings in Table 1 (note that the area surveyed for this stops at 135°E).

The updated **medium-term forecasts** of conditions in the GAB are shown in Figure 3. These indicate areas holding fish now will continue to do so throughout February and into early March. Forecasts still show the area immediately west/southwest of Kangaroo Island as a cooler box, indicating the upwelling will continue to be a significant influence for the remainder of the fishing season. Note that in these forecasts green is still very suitable for SBT and the 200m-depth contour across all of the CSIRO images are shown as a black line. Comparing the image from 2017 and 2018 shows the magnitude of warm water area this year.

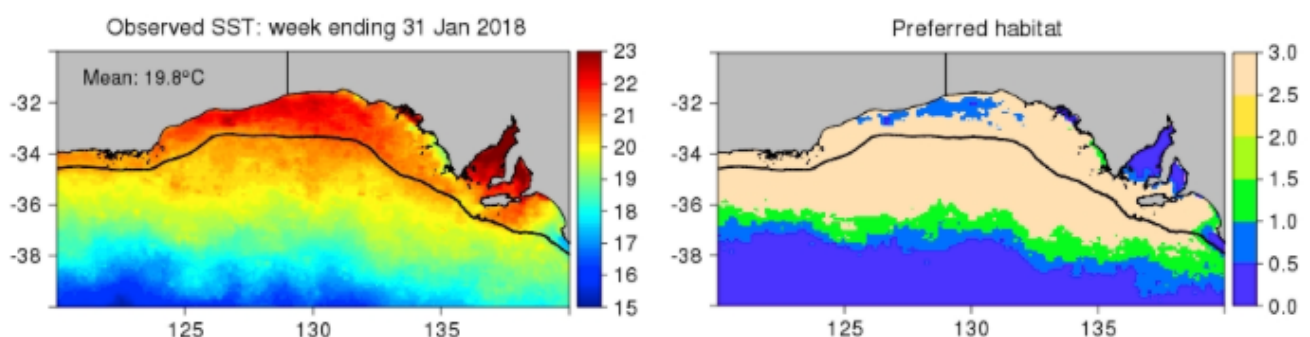


Figure 1: Sea Surface Temperature and SBT Habitat over the past week to 31st January 2018 (CSIRO 2018 - GAB Forecasting Website)

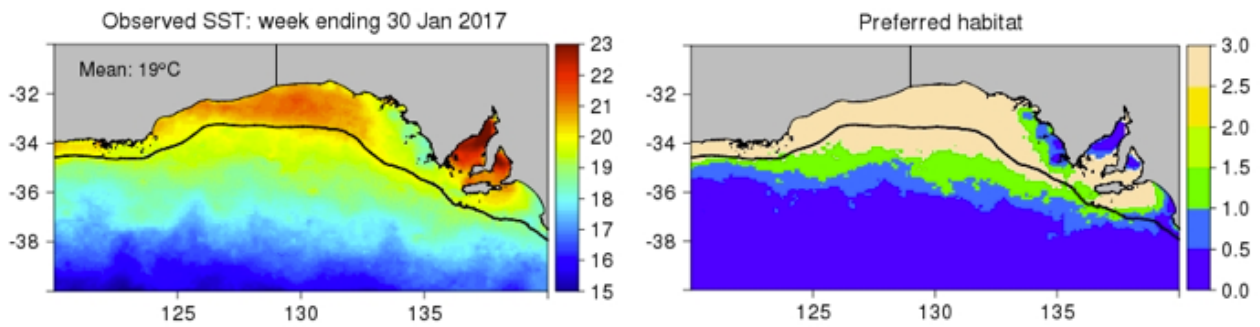


Figure 2: Sea Temperature and SBT Habitat distribution for the week ending 30th January 2017 (CSIRO 2017).

Table 1: CSIRO Aerial Survey sightings from 2017, for the period between 1st to 31st January (tonnage per longitude band)

128°	129°	130°	131°	132°	133°	134°
0 tonnes	0 tonnes	35 tonnes	230 tonnes	1,017	1,010	6,430

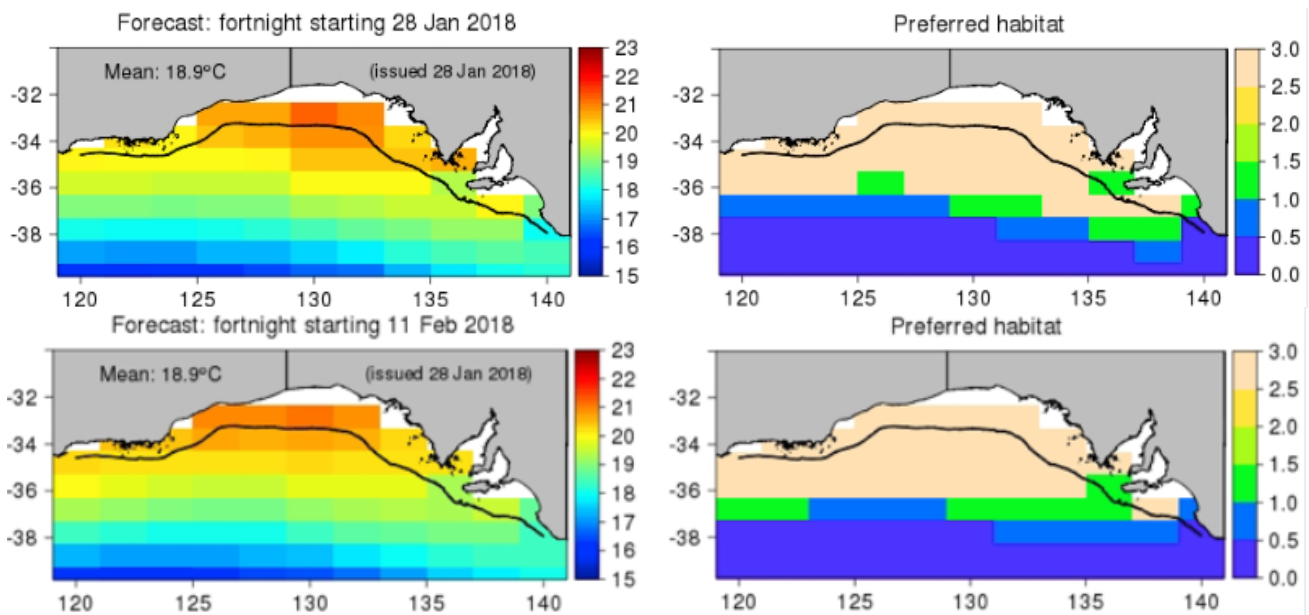


Figure 3: Longer term forecasts of Sea Temperature and SBT habitat issued on 28th January for the first half of February (top) and for the second half of February (bottom) (CSIRO 2018 – GAB Forecasting Website).

GAB Sea Surface Temperature (SST):

The broader GAB area continues warming with the influence of local weather and warm currents continuing to feed in from the west. Cool water from the Bonney Upwelling remains a prominent feature in the east of the GAB (Figure 4). In these (CSIRO) images, the yellow is highly suited for SBT, and what is very noticeable is that this band extends well into Bass Strait.

Actual SST along the 200m-depth contour now is shown in Figure 5.

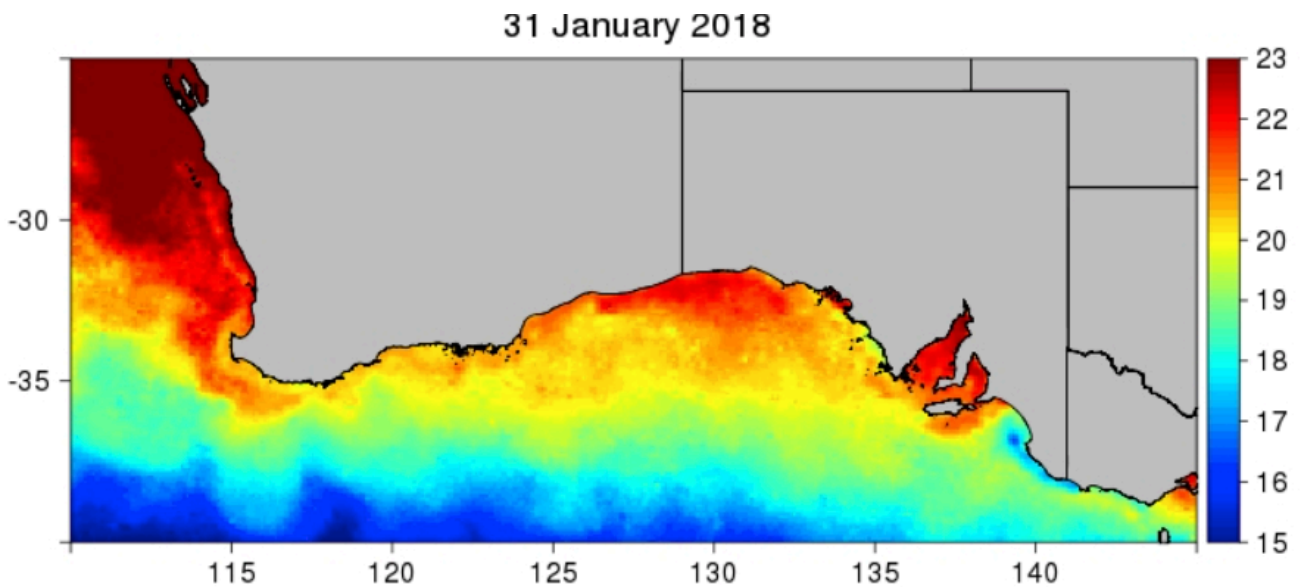


Figure 4: Sea Surface Temperature across southern Australia over the past week (CSIRO 2018 - GAB Forecasting Website)

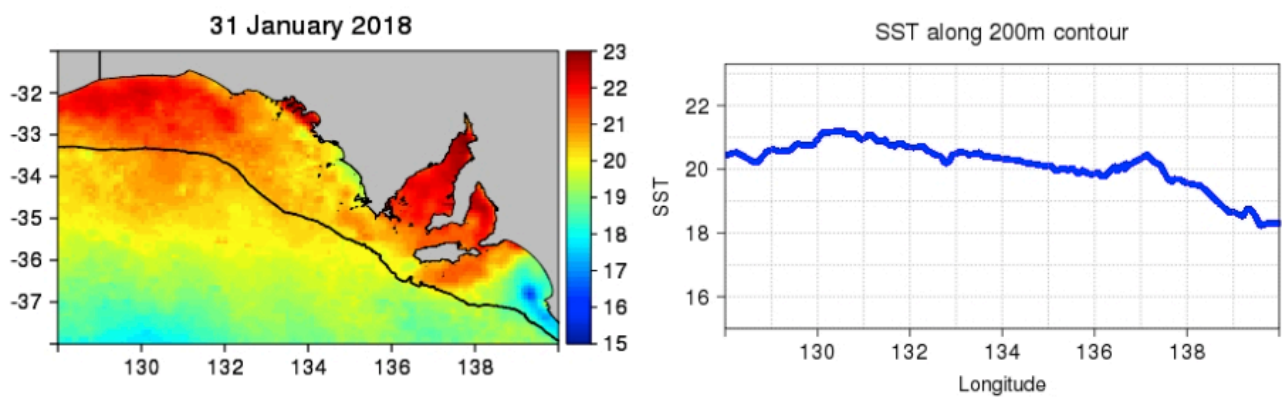
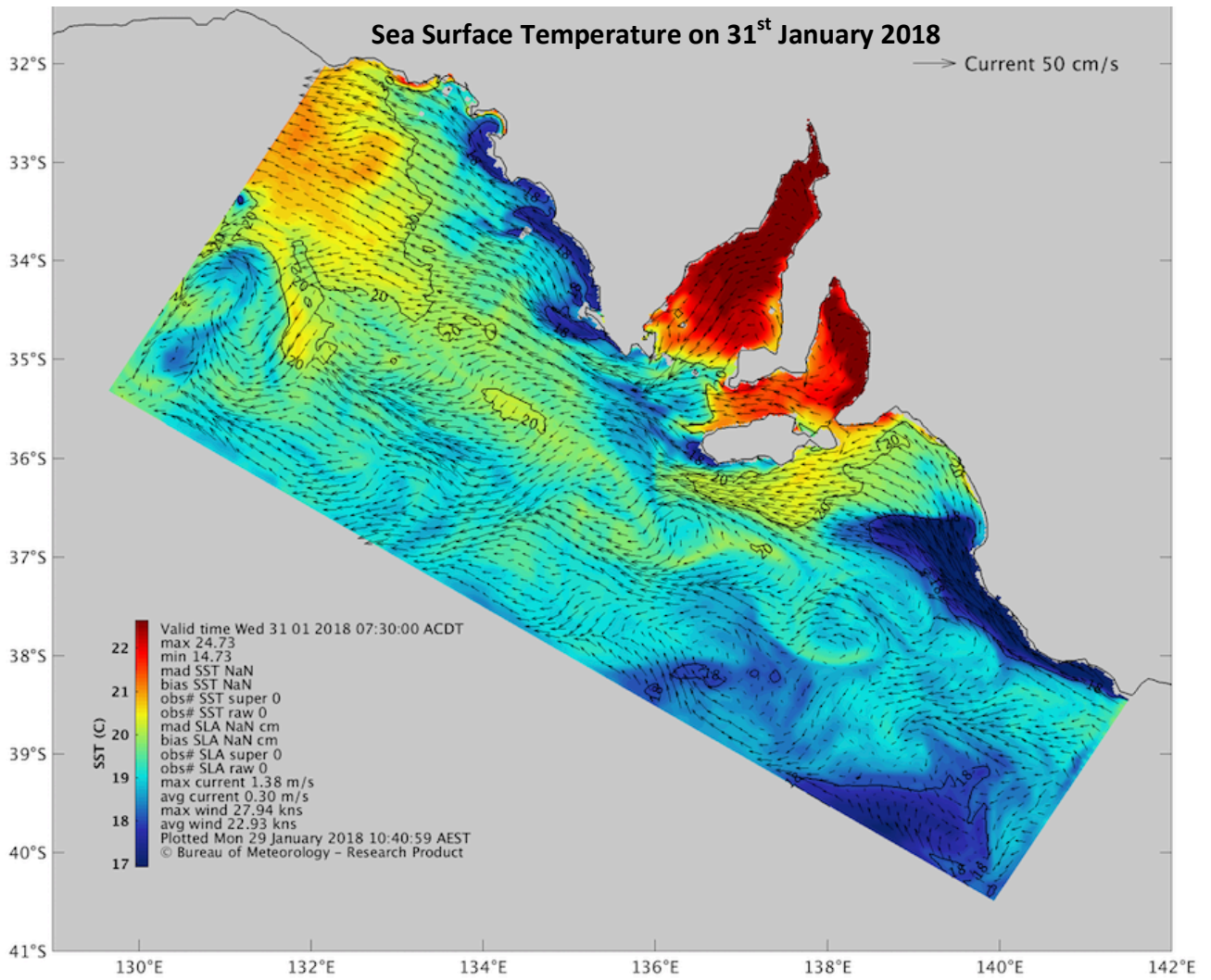
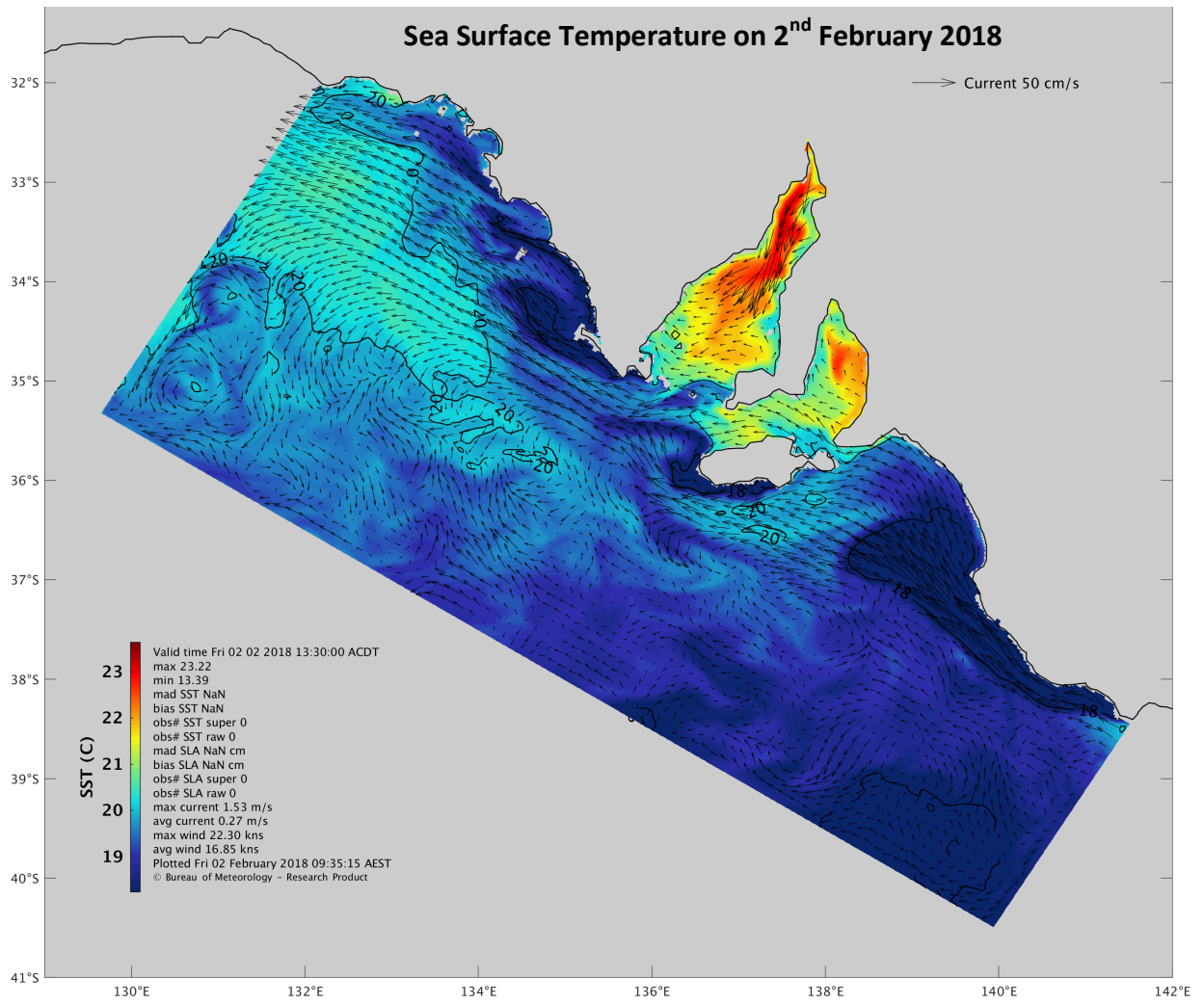


Figure 5: SST satellite image between longitudes 128° to 140°E (left) and corresponding graph of SST along the shelf break (right). Top image is the situation at a comparable point in time last season; bottom image is now (CSIRO 2018 - GAB Forecasting Website)

Fine-scale Sea Surface Temperature and short-term forecasts are shown in Figure 6. Please note that the ‘sliding’ colour-scale bar has shifted at the start of February – this means 20°C appears as yellow on the 31st January but is shown as aqua on the 2nd February. Using the ‘sliding’ colour scale means that the warmest water will always show as red and the coldest as blue but the temperature that red or blue represent changes. The 18 & 20°C contour lines will continue to be shown as black lines on all of these images.

These fine-scale images continue to show suitable surface temperatures across a huge area, and that upwelling of cool water is becoming very obvious feature of the South East, as well as extending to the west of Kangaroo Island and along inshore areas adjacent to western Eyre Peninsula.





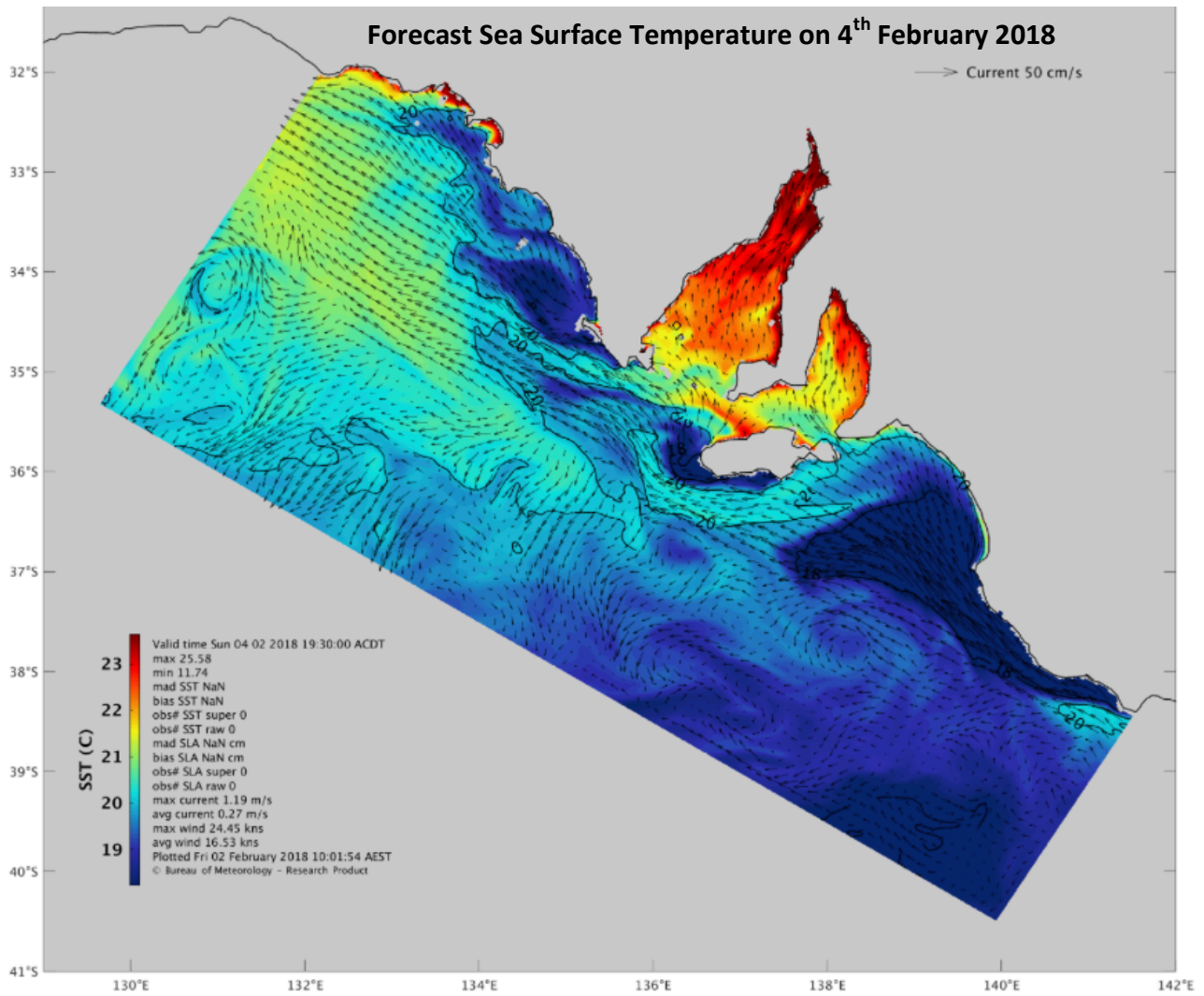


Figure 6: Snapshots of now-cast (31st Jan – top; 2nd Feb - middle) and short-term forecast of Sea Surface Temperature for the 4th February (bottom). The 18 and 20°C temperature contours are marked by solid black lines, the direction and strength of the water currents are indicated by the black arrows. Note the scale bar changes between these images (SARDI-BoM 2018 – eSA Marine website).

The **Sea Floor Temperature** remains cool over much of the GAB area, with upwelling having a significant influence to the west of Kangaroo Island, the western side of Eyre Peninsula and in the southeast (Figure 7). A comparison to a similar point in time last season is shown in Figure 8 – though please note that the temperature scale is slightly different between the images and the temperature contours in 2017 were set at 19 & 21°C; in 2018 they are 18 & 20°C.

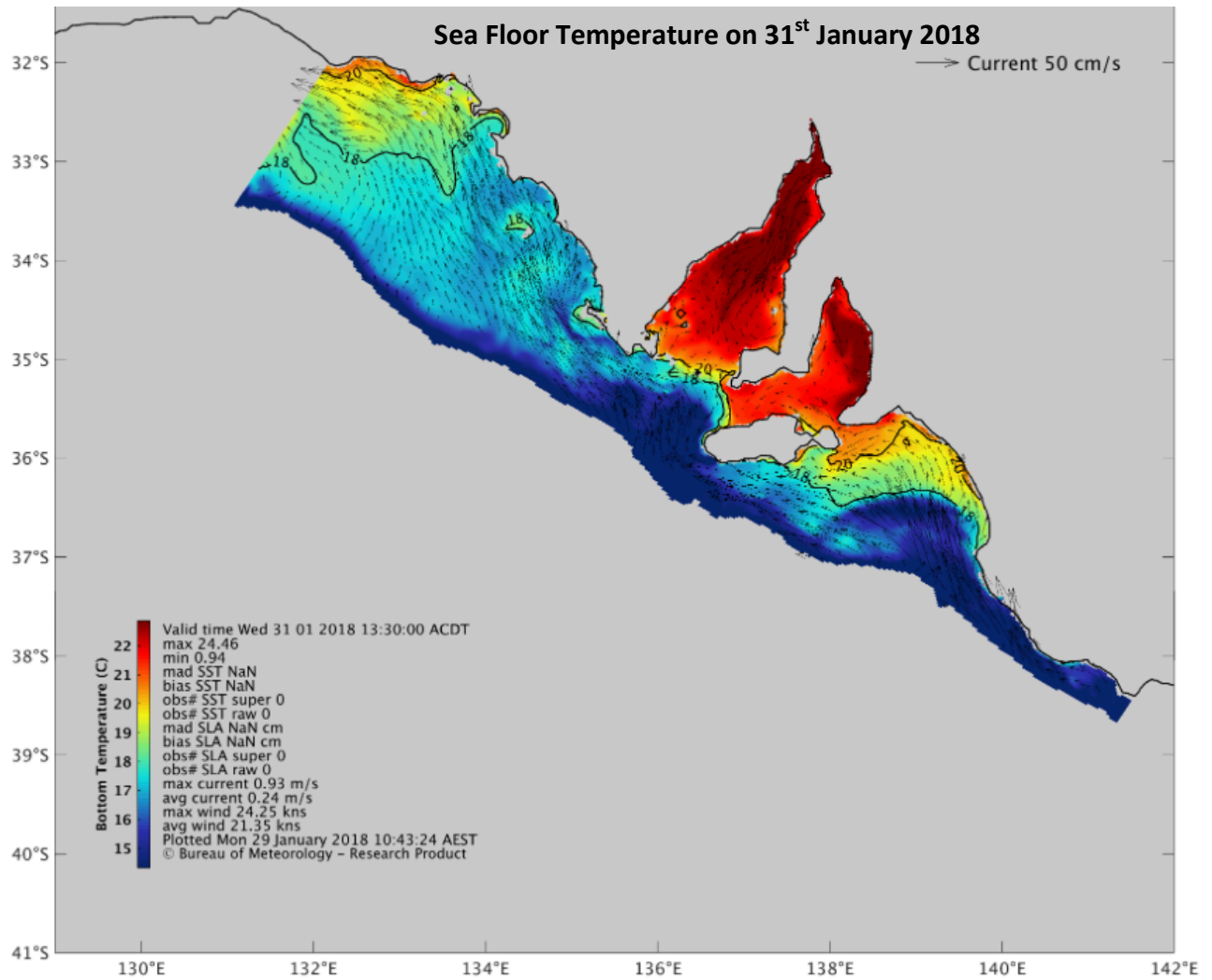


Figure 7: Snapshot of the Sea Floor Temperature at 1:30pm on the 31st January 2018; the 18 and 20°C temperature contours are marked by solid black lines, the direction and strength of the water currents are indicated by the black arrows (SARDI-BoM 2018 – eSA Marine website).

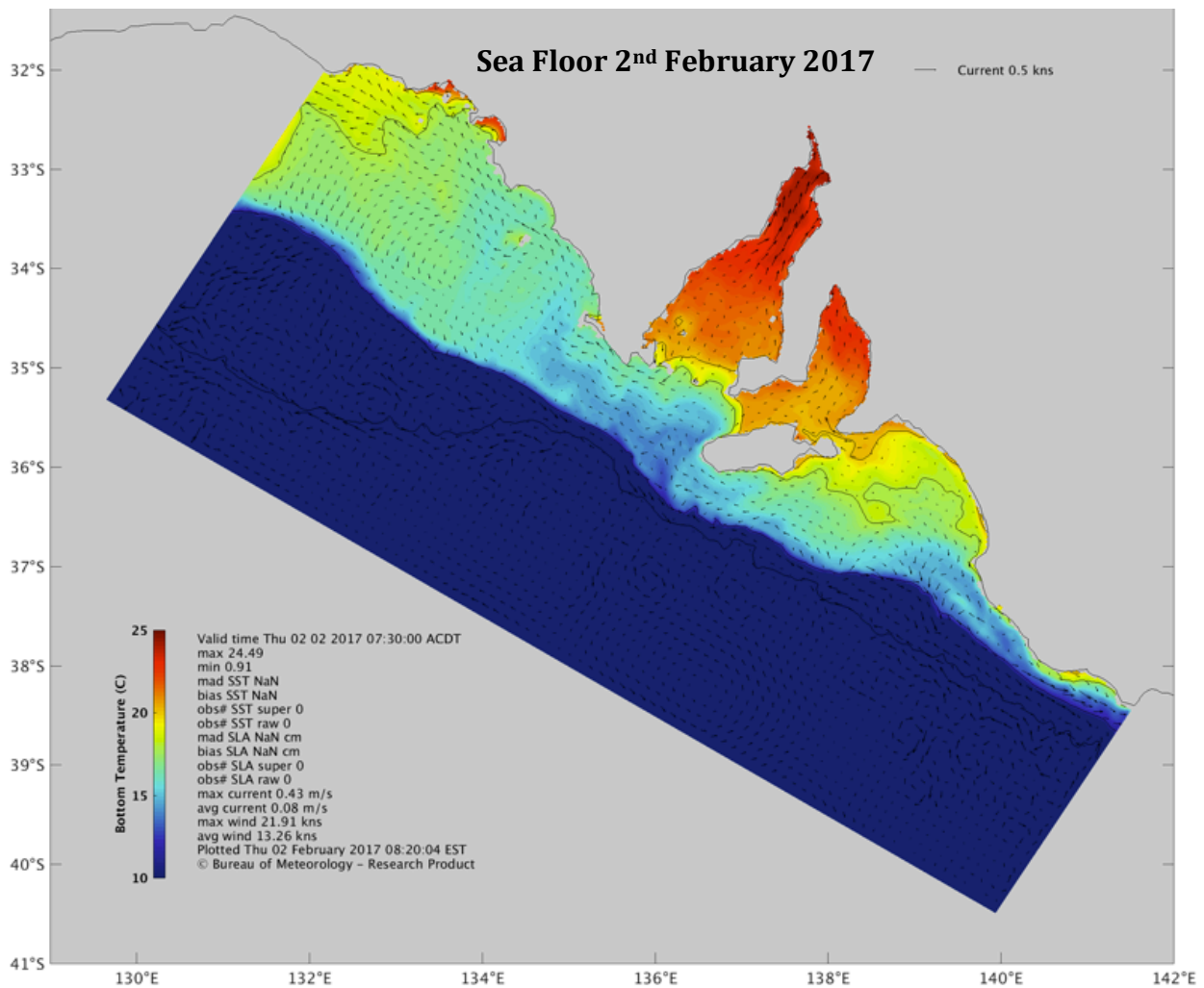


Figure 8: Temperature at the Sea Floor on 2nd February 2017 taken from the draft e-SA Marine Project. Black arrows indicate water currents, the contour lines indicate the 19 and 21°C boundaries, and information on the average and maximum water current and wind speeds for the sea area outlined are listed in the legend (SARDI-BoM 2017).

SST Western Australia and East Coast:

The recent sea surface temperatures of regions adjacent to Western Australia and the East Coast of Australia are shown in Figure 9. Note that the temperature scales are different between these 2 areas – WA is 13-32°C and NSW 12-28°C.

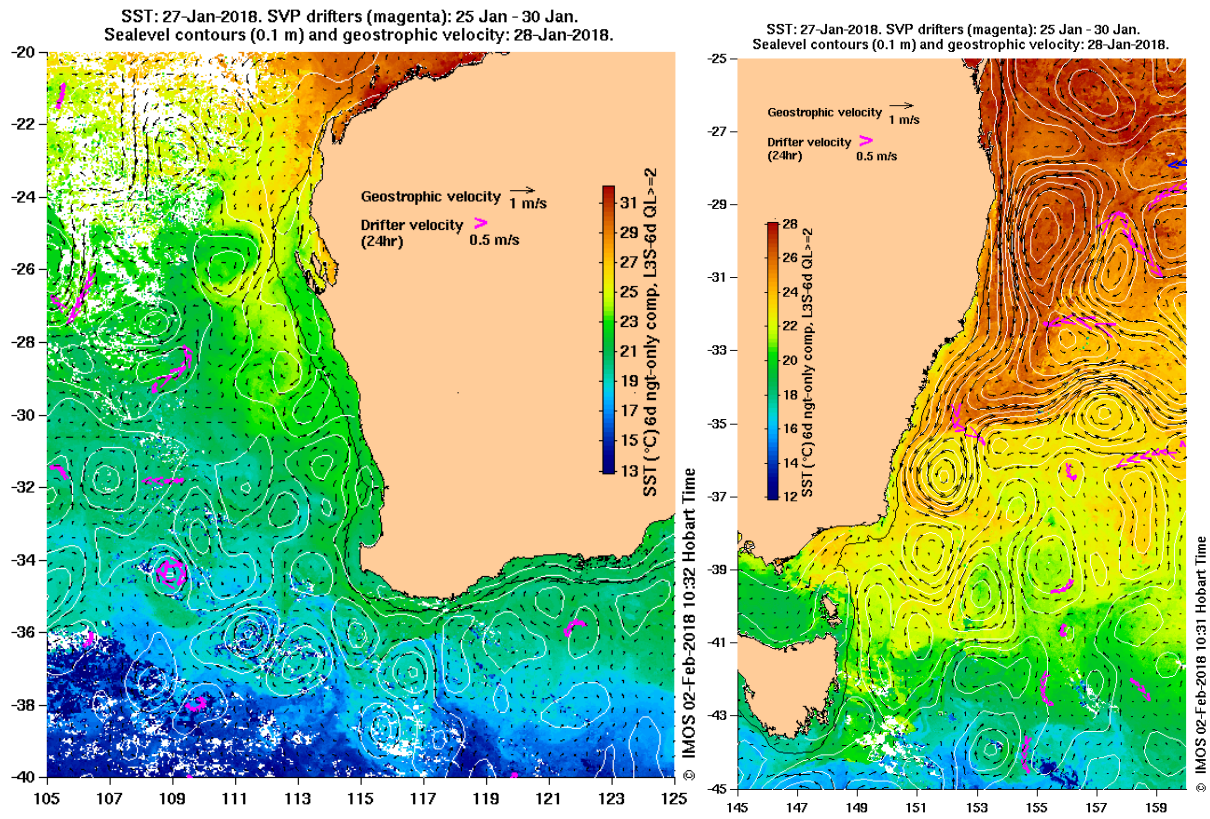


Figure 9: Snap shot of SST adjacent to Western Australia and along the East Coast (IMOS 2018)

Chlorophyll / Productivity Levels:

The most recent clear image from this satellite over this past week is shown in [Figure 10](#). Conditions continue to be highly suited to SBT over much of the GAB, with some dirtier water in the immediate vicinity of regions experiencing upwelling.

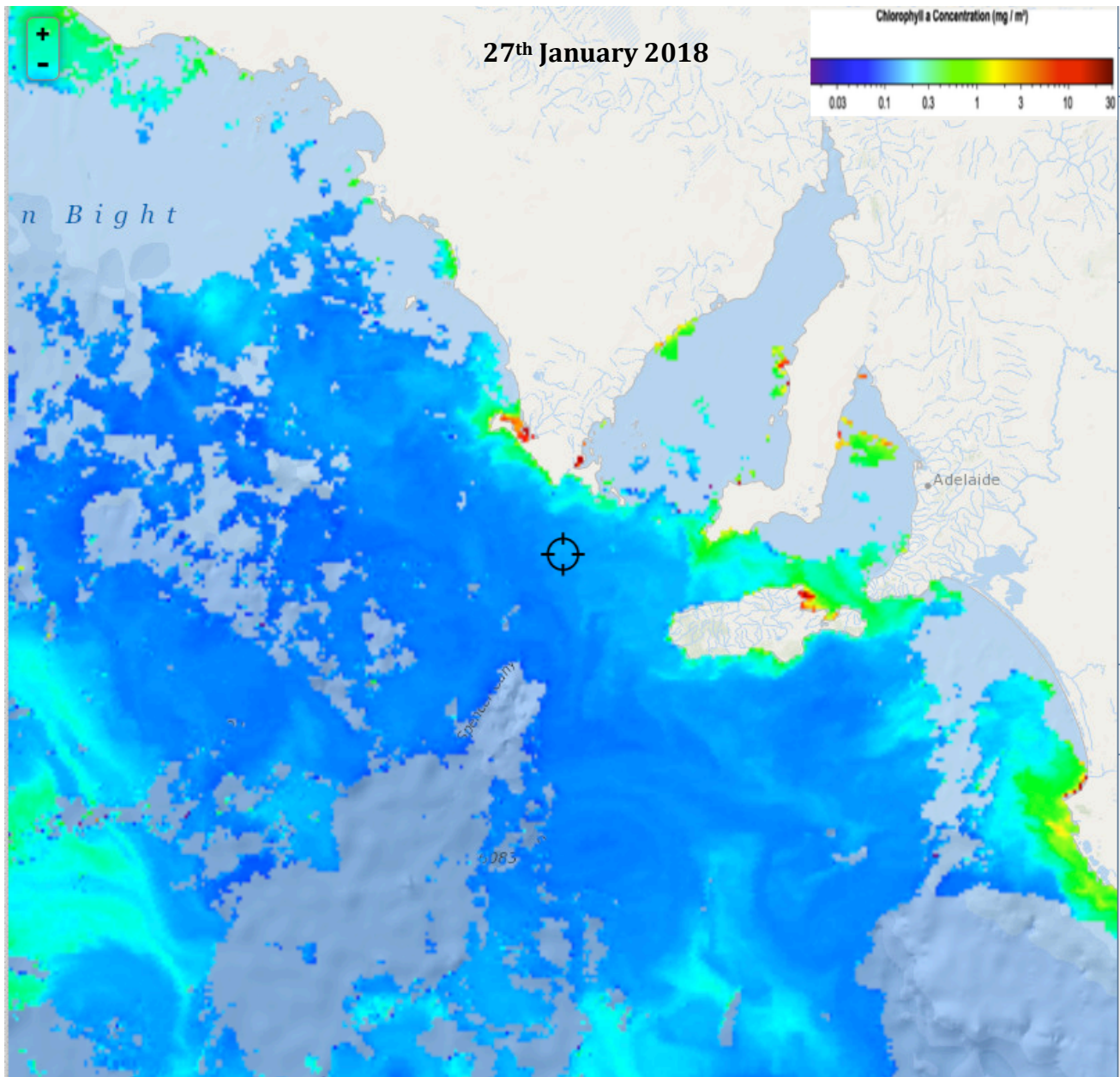


Figure 10: Chlorophyll plot from the Great Australian Bight taken on 27th January 2018, the grey areas have no readings due to cloud cover.

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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