

Climate and Oceanographic Summary, Great Australian Bight 2017 - 10

Kirsten Rough – 9th January 2017

Summary:

The Sea Surface Temperatures across the Great Australian Bight continue to warm slowly.

The sea floor temperatures south of Streaky Bay, Nuyts and Fowlers Bay regions are increasing over a wider area.

Longer-term GAB forecasts are suggesting sea temperatures will remain suitable for SBT at the fishing areas closer to Port Lincoln throughout the entire fishing season.

The upwelling continues to show as cold water at the sea surface along the Bonney coast of the South East of SA, the southwestern tip of Kangaroo Island, along the lower west coast of Eyre Peninsula and out from Elliston.

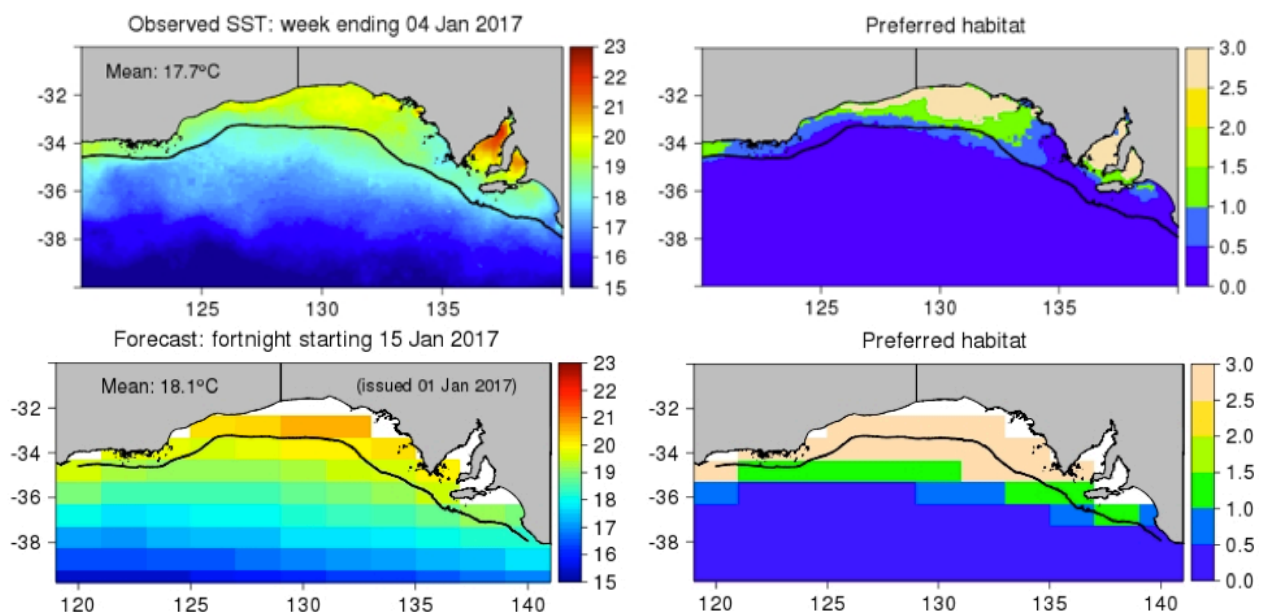
The CSIRO Aerial Survey has started with 6 (of the 15) transect lines flown over this past week. Sightings are predominately where surface water temperatures were at or exceeded 20°C. Jess Farley leads this program and can be contacted for specific details (Jessica.Farley@csiro.au), general summary information will be provided to members via ASBTIA and these updates.

CSIRO Aerial Survey SBT sightings from 1st January 2016 to date (8th Jan) tonnage per longitude:

128°	129°	130°	131°	132°	133°	134°
0 tonnes	0 tonnes		0 tonnes	442 tonnes		

Forecast Sea Surface Temperature and SBT Habitat:

Updated **longer-term forecasts** of conditions in the GAB for the 2017-fishing season continue to indicate the distribution of suitable sea temperatures improves considerably through January and persists into March so that the conditions will be suitable for the majority of SBT over a wide area including below Eyre Peninsula (Figure 1).



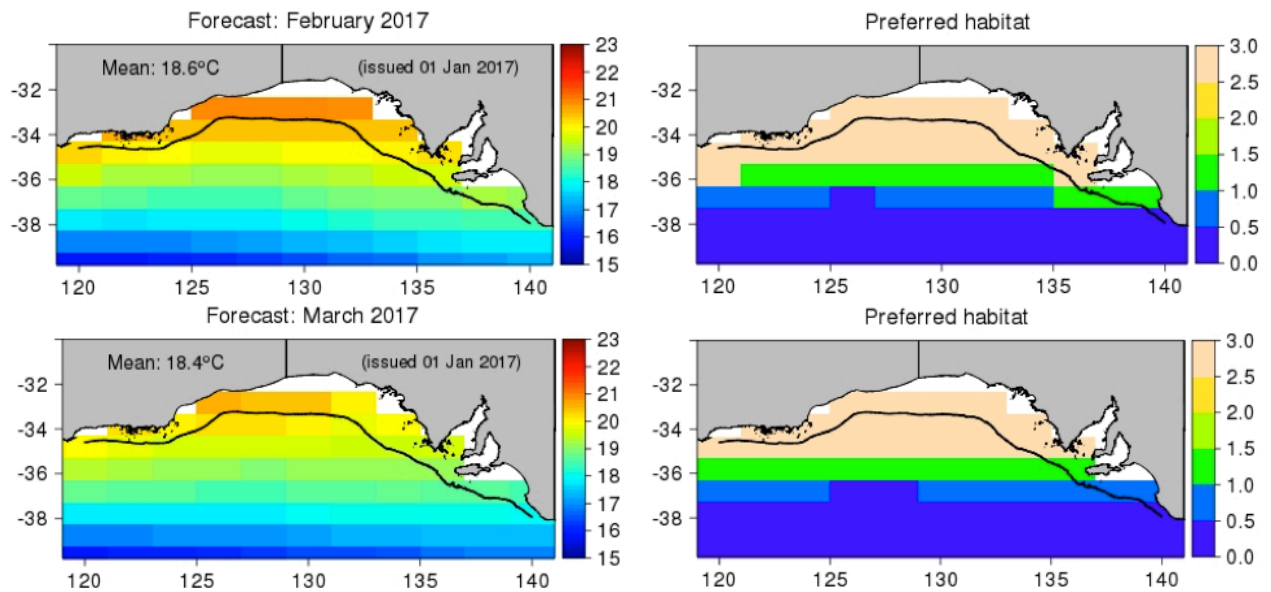


Figure 1: Sea Temperature and SBT Habitat forecasts issued on the 1st January 2017. Top image shows the situation this past week; second image is fortnight from the 15th January; third image is for February and bottom image shows the situation through March (CSIRO 2017)

GAB Sea Surface Temperature (SST):

The situation through the month of December for 2016 and the previous 5-years is shown in Figure 2. Essentially the broader area of the GAB was much cooler this December compared to the same time period of recent years.

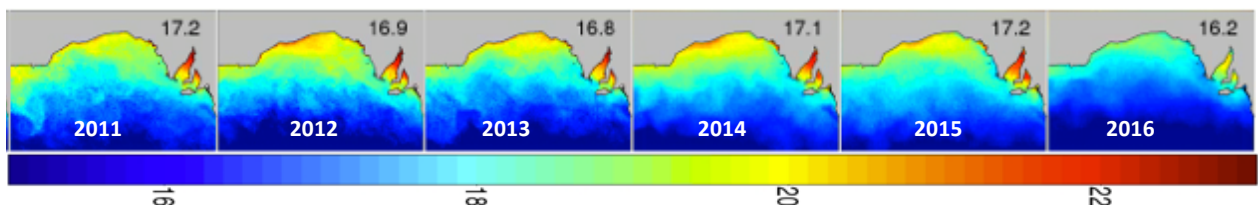


Figure 2: GAB sea surface temperatures averaged through the month of December for 2016 and the previous 5 years (CSIRO 2017).

The broader GAB area continues to warm progressively with a small amount of warmer water feeding around the southwest corner of Western Australia (Figure 3); and a number of warmer patches appearing on the shelf throughout the central Bight.

The Actual SST along the 200m-depth contour is shown Figure 4. Along the shelf-break the warmest area is between longitudes 131° and 132°E; with a favourable thermal front at longitude 136°E.

The “now-cast” images from the e-SA Marine Project are shown in Figure 5. These are indicating warming continuing in the western/central GAB and the Gulfs. Also evident is cold water at the surface through the Bonney upwelling area of the South East of SA, the south-western tip of Kangaroo Island, as well as the Avoid Bay and Elliston areas along the coastline of lower and western Eyre Peninsula.

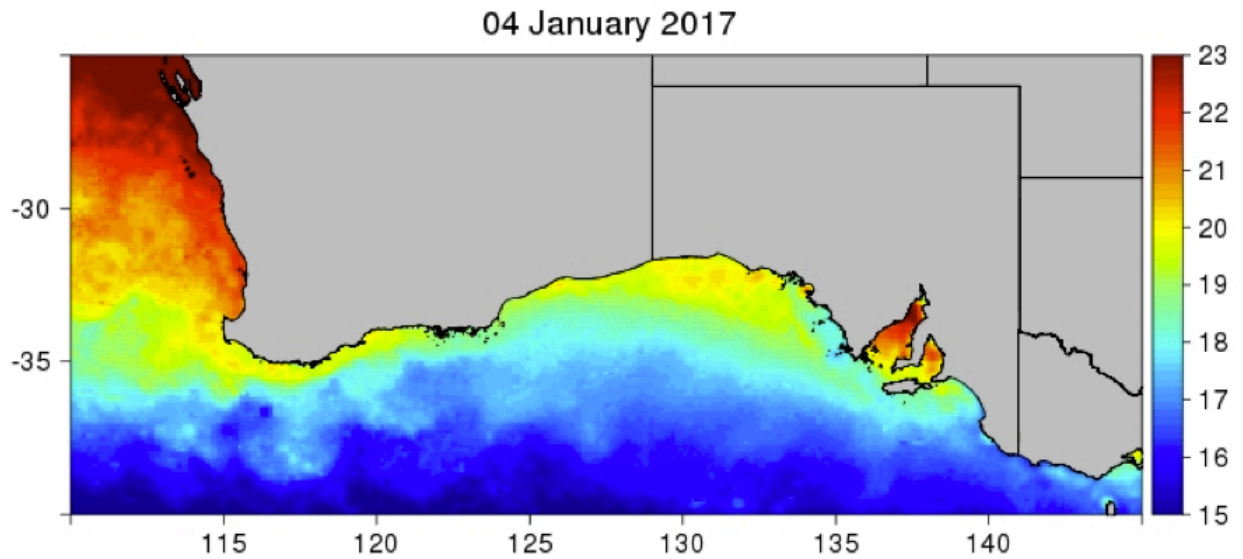


Figure 3: Sea Surface Temperature across southern Australia over the past week (CSIRO 2017).

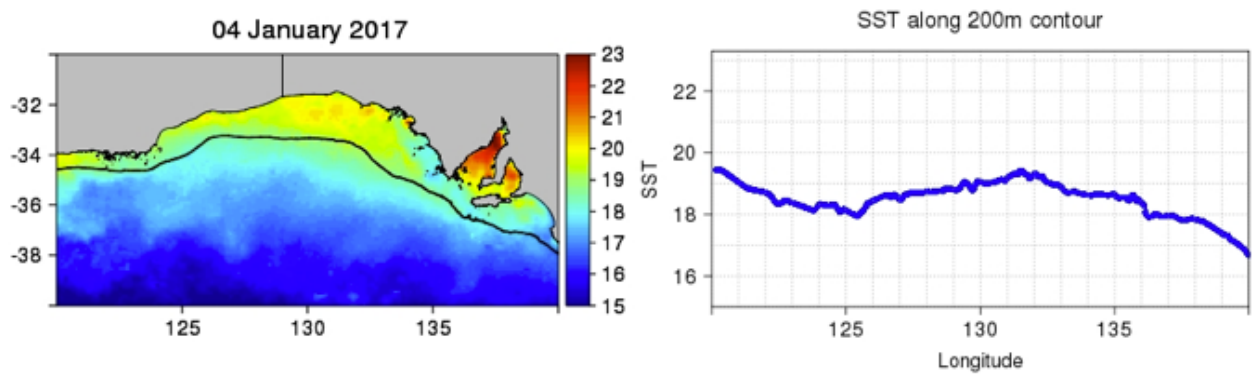


Figure 4: Most recent Sea Surface Temperature satellite image across the GAB between longitudes 120° to 140°E (left) and corresponding graph of SST along the 200m-depth contour, (right) (CSIRO 2017).

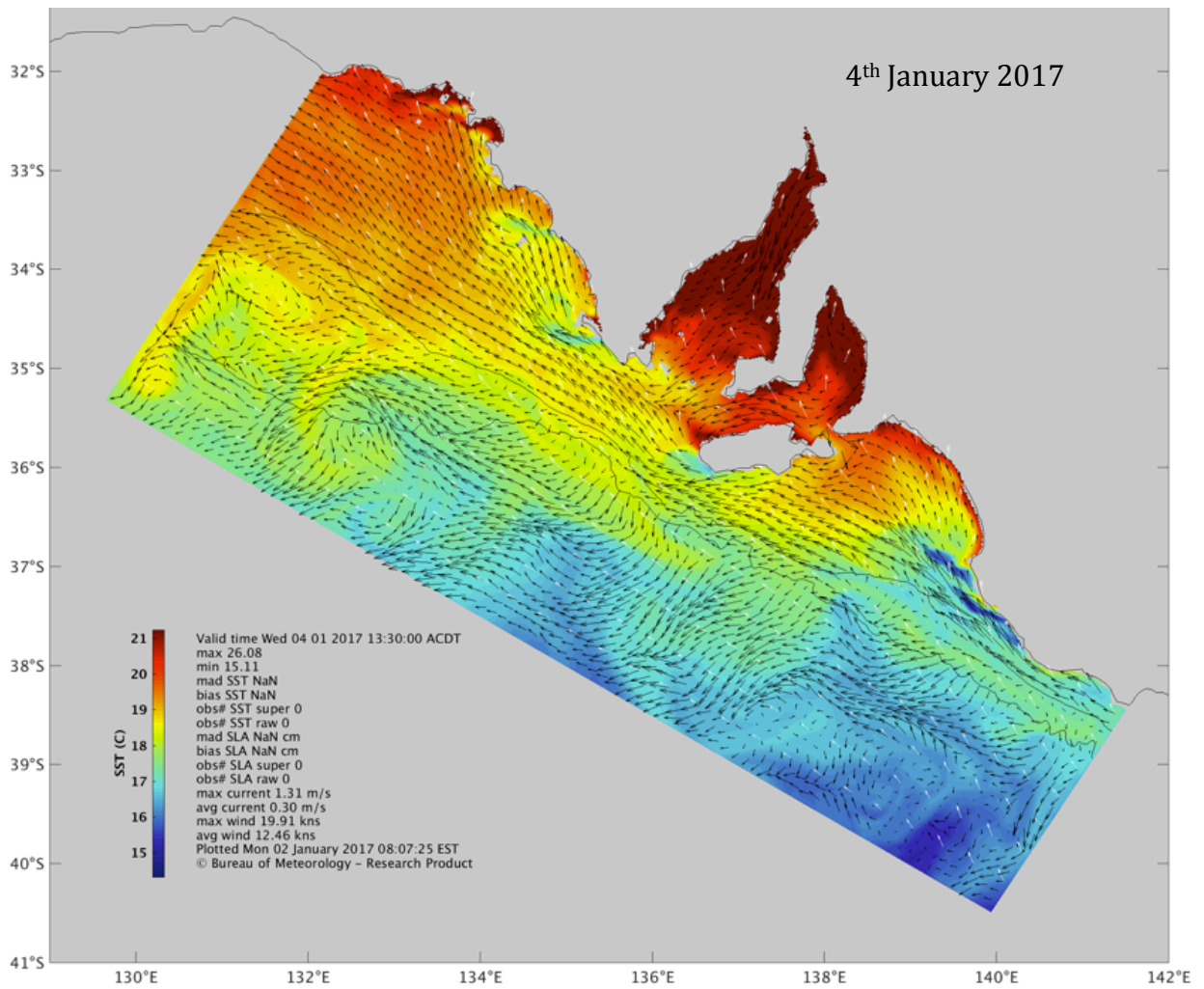


Figure 5: Snapshot of the actual Sea Surface Temperature (now-cast) on the 4th January 2017. Please note that the temperature scale for this map ranges from 15 to 21°C. Also shown: water currents (black arrows) wind direction (white arrows) and information on the average and maximum water current and wind speeds for the sea area outlined (SARDI-BoM 2017).

The most recent plot of sea-floor temperature is shown in Figure 6. The warmest areas continue to be the shallow Gulfs and Sanders Banks area. The inshore shelf areas to the south and southwest of Streaky Bay and Fowlers Bay are showing some larger patches of warmer waters.

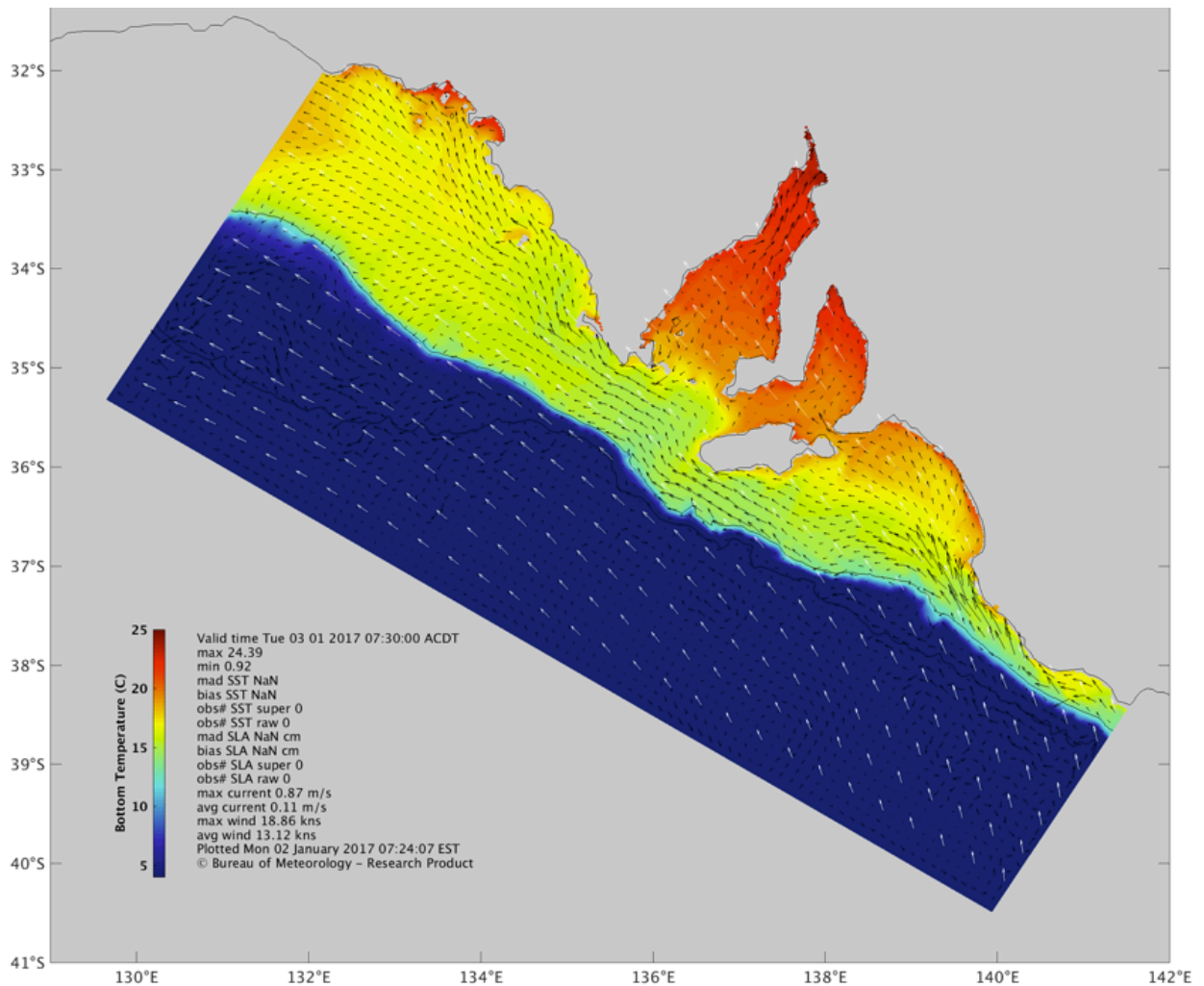


Figure 6: Temperature at the Sea Floor on 1st January 2017 taken from the draft e-SA Marine Project. Also shown: surface water currents (black arrows) surface wind direction (white arrows) and information on the average and maximum water current and wind speeds for the sea area outlined (SARDI-BoM 2017).

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 7. The warm waters of WA continue to be positioned northwards of Shark Bay with limited advancement towards Cape Leeuwin. Warm water continues to push southwards along the east coast of Australia.

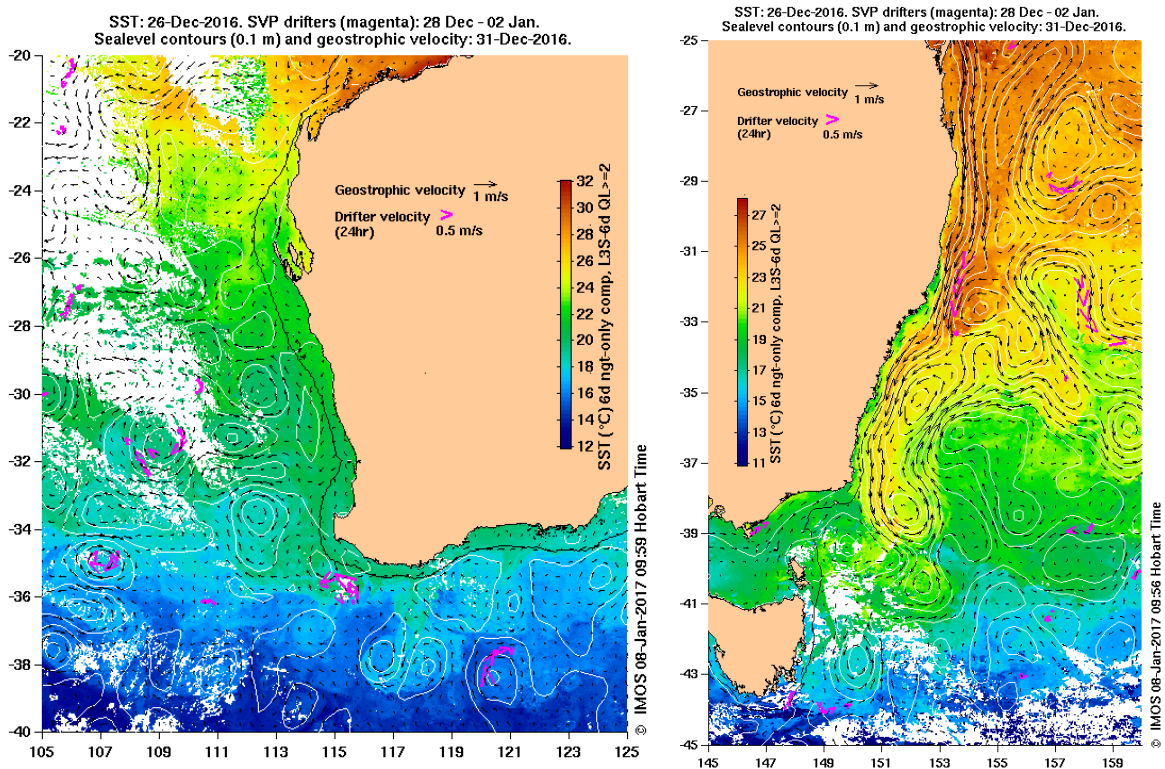


Figure 7: Sea Surface Temperatures adjacent to the west coast (left) and the east coast (right) of Australia over the past week (IMOS 2017). Please note that the temperature scales differ between the two images; the WA image ranges from 12 to 32°C and the NSW/Tas image ranges from 11 to 27°C.

Chlorophyll/productivity levels:

A single snapshot from an individual satellite pass is shown in Figure 8; this shows conditions being suited to SBT across both the historic and the recent fishing locations of the GAB. Chlorophyll levels are starting to increase in areas experiencing upwelling.

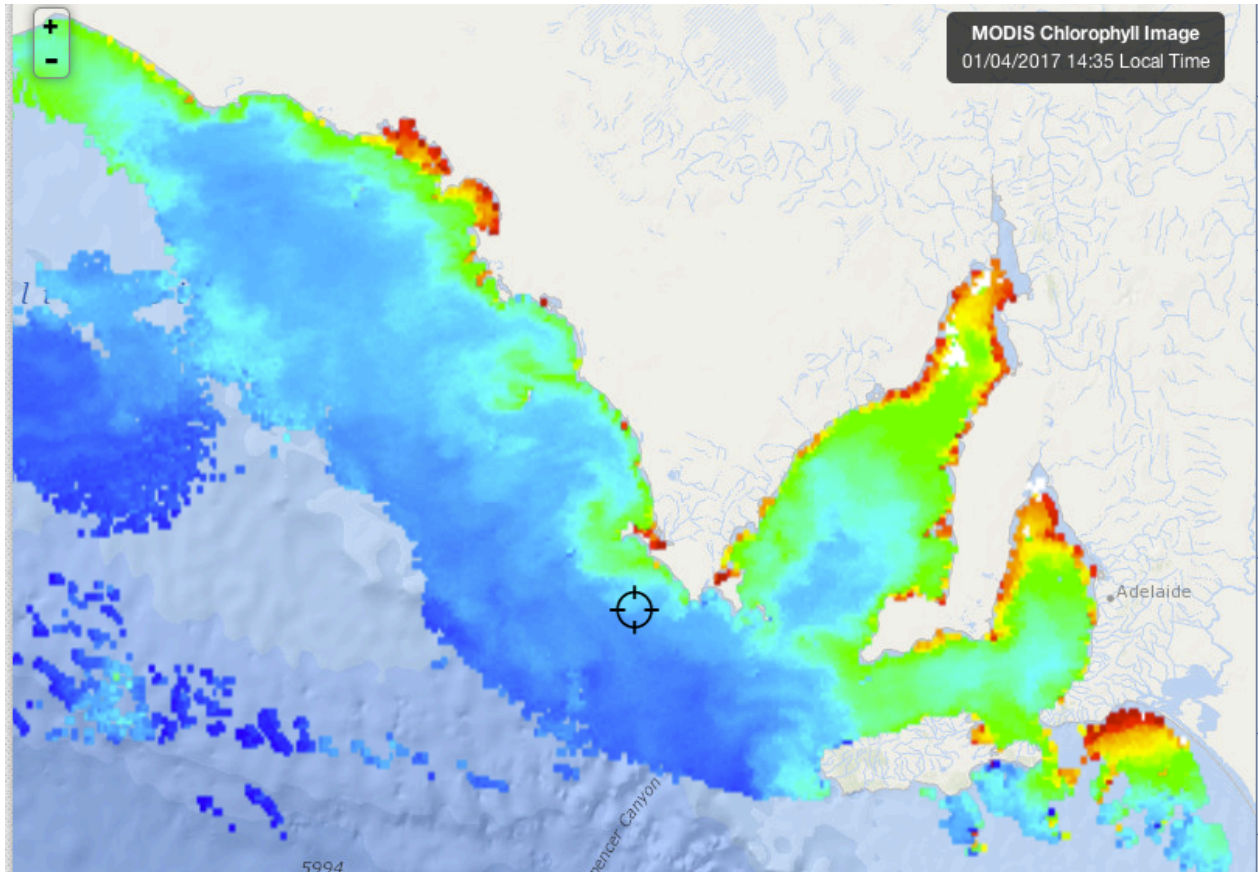


Figure 8: Chlorophyll plot from the 4th January 2017, the grey areas are due to cloud cover (FishTrack 2017).