

# Climate and Oceanographic Summary, Great Australian Bight 2016 - 8

Kirsten Rough – 20<sup>th</sup> December 2015

Please find following the latest update for recent and expected oceanic conditions for the 2016 fishing and aerial survey season.

## Summary:

The sea temperatures of the GAB area have shown a marked increase over this past week with the recent prolonged period of hot still weather.

No upwelling was visible on images along the South East of SA this week.

Forecasts on SBT habitat distribution continue to suggest that the area below Eyre Peninsula is likely to be a suitable fishing area into January. These conditions are likely to extend to Young Rocks and more easterly areas through January and into February.

## GAB Sea Surface Temperature (SST):

With a number of very hot calm days over the past week, the sea surface temperature across the Great Australian Bight has shown a marked increase. The situation for the central to eastern GAB area for the previous 2-weeks is shown in Figure 1 (these plots show the satellite image on the left and the temperature along the shelf break in the corresponding graph on the right). The same format images coming into the previous fishing season are shown in Figure 2. The most obvious differences between December 2014 and 2015 are that the GAB is now generally warmer, the absence of upwelling in the South East and the larger pool of warm water to the east of Sanders Banks.

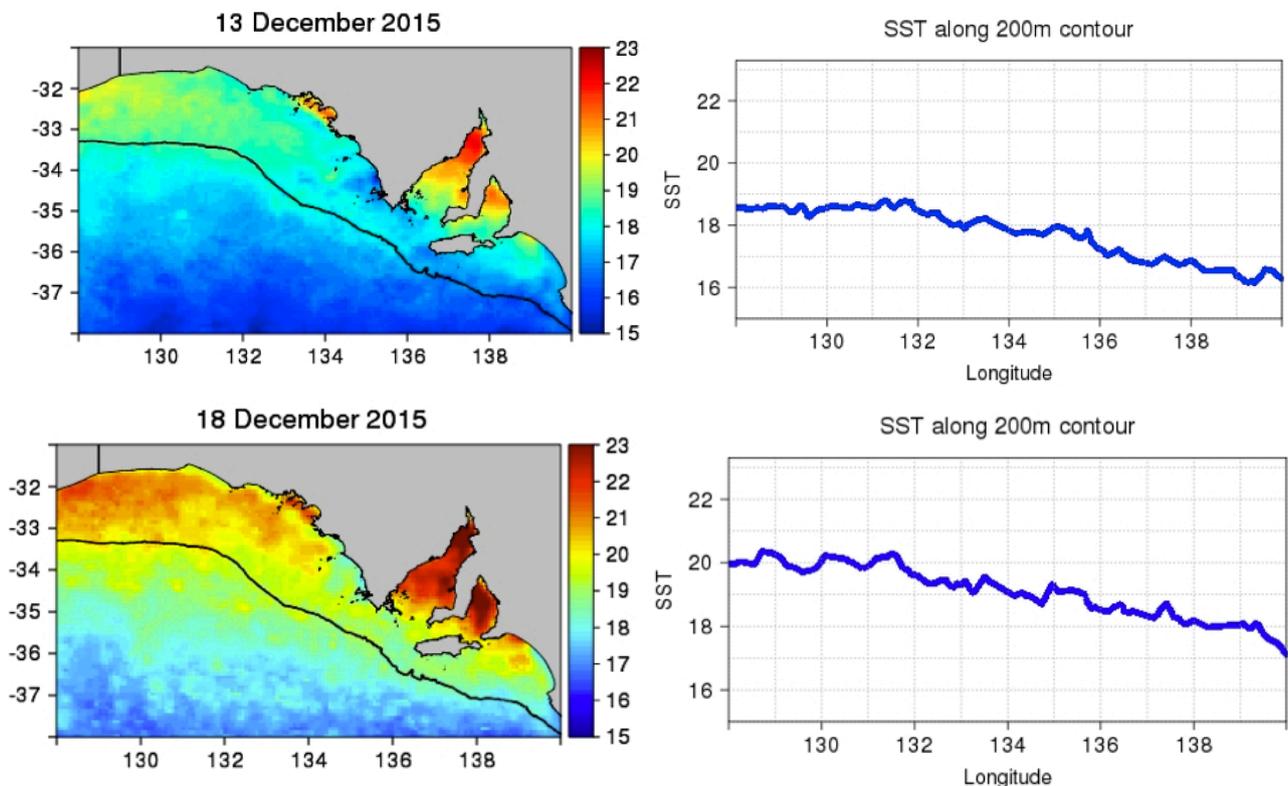


Figure 1: Snapshots of sea surface temperatures across the Eastern GAB over the past 2 weeks, satellite image on left and graph of temperature along the shelf break (black line) on the right (CSIRO 2015).

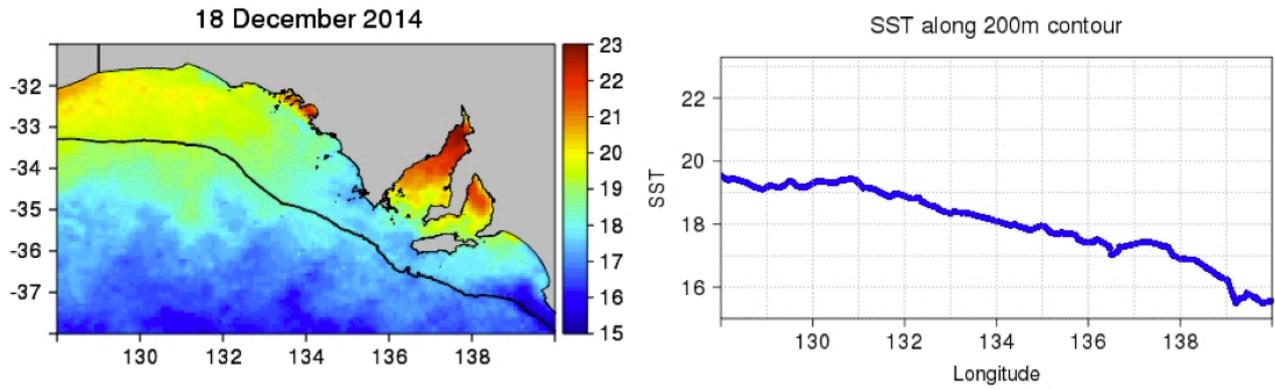


Figure 2: Sea surface temperature across the Eastern GAB for the 3-day period around the 18<sup>th</sup> December 2014, satellite image on left and graph of temperature along the shelf break (black line) on the right (CSIRO 2014).

Specific SST’s at some of the key fishing locations historically and from recent years are detailed in Table 1, (and shown in Figure 3). On the 18<sup>th</sup> and 20<sup>th</sup> December 2014 sea surface temperatures were 18.0°C South West of Rocky Island and 18.3°C in the Cabbage Patch area.

Table 1: Sea Surface Temperature for 20<sup>th</sup> December 2015, at some important historic and recent catching areas.

131°00'E 33°05'S = **°C	132°00'E 33°23'S = **°C
133°00'E 34°05'S = **°C	134°00'E 34°15'S = 18.3°C
Yatala Reef 19.5°C	Cannan Reef 19.3°C
SW Rocky Island 18.5°C	Cabbage Patch area 18.5°C
SW Cape de Cudiac 17.5°C	Young Rocks area 17.4°C
SE Pelorus Rocks 18.0°C	Sanders Banks area 18.8°C

\*\* Temperature not available due to cloud cover obscuring satellite view of these locations

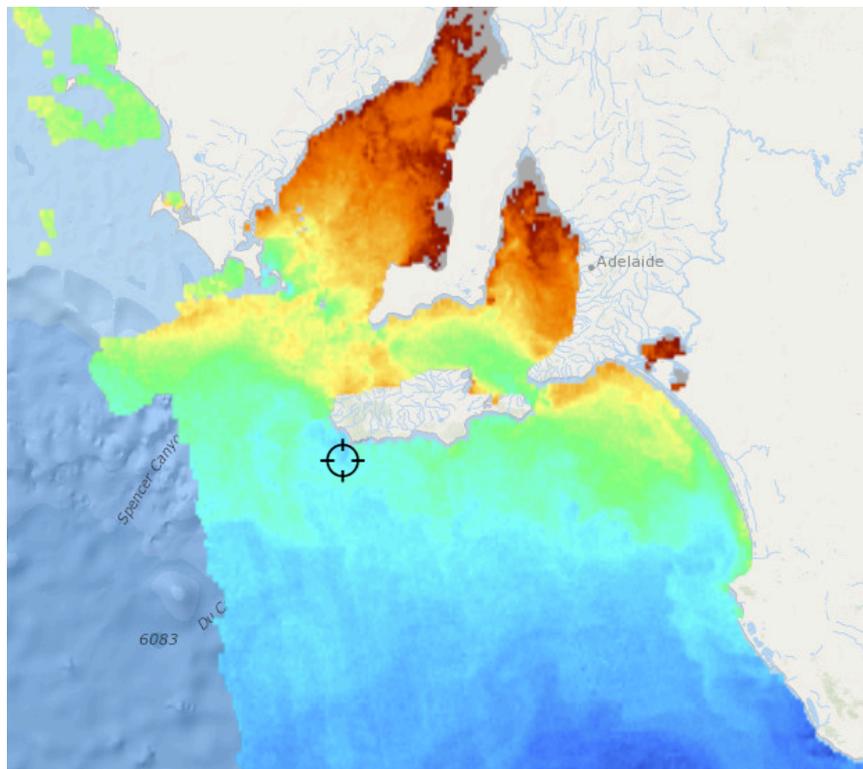


Figure 3: A satellite image from the 16<sup>th</sup> December 2015 showing desirable sea temperatures in a band from Kangaroo Island to below Eyre Peninsula; the cursor is showing a small pool of cool water (approx. 17°C) note the areas with no colour are obscured by cloud (FishTrack 2015).

From a habitat perspective, how the situation now compares to a similar point in time last season can be seen in Figure 4; where the top image is sea temperature on left and preferred habitat on the right leading into the 2015-fishing season; the lower image is the past week leading into the 2016-fishing season. The area of warmth generally across the western and central GAB is now similar to the same point in time coming into the previous season. A key difference between these two images is the status of the upwelling along the shelf break of the South East of SA. Mid December 2014 upwelling in the SE was obvious with cool pools evident around western KI and along the southern and western coast of EP. Lack of upwelling over the past few weeks is probably why there is currently a larger area of warmer water (and “preferred habitat”) east of the Sanders Banks area, when comparing to December 2014.

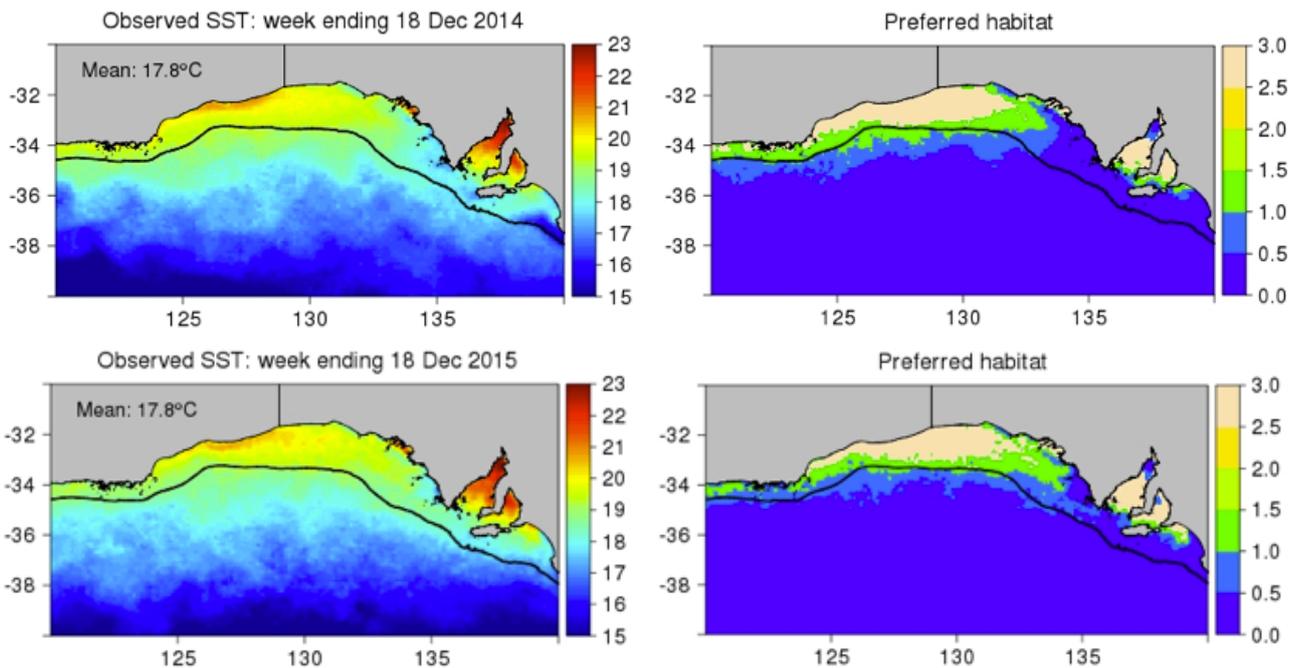


Figure 4: Comparison of SST and preferred habitat distribution for this point in time coming into the last season (18<sup>th</sup> December 2014 top images) and the situation now (18<sup>th</sup> December 2015, bottom images) (CSIRO 2014; 2015).

### **Forecast SST and SBT Habitat:**

The longer-term forecasts of conditions in the GAB can be seen in Figure 5. In the habitat forecast images (on the right) the areas at or above 1 (green to skin colour) are more preferred habitat for SBT. Over the next 2 fortnightly periods, the Rocky Island and Cabbage Patch/western Kangaroo Island areas remain the closest regions of “preferred habitat”. Later January and into February catching areas are likely to extend into Young Rocks and more easterly areas. How this plays out will be largely determined by the upwelling situation (and this largely dependent on local weather patterns – so will be tracked and reported via these updates).

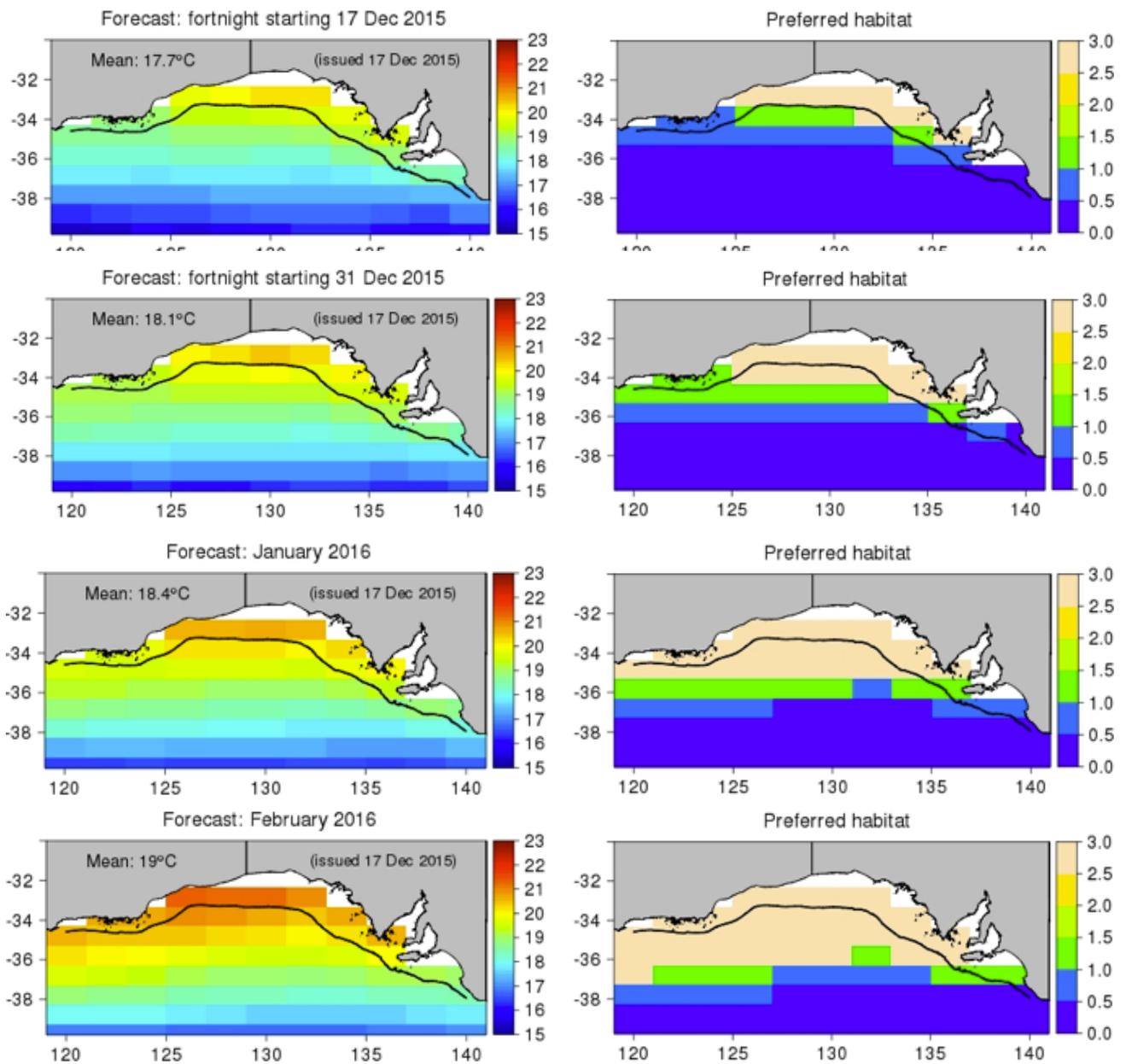


Figure 5: SBT Habitat forecasts issued on the 17th December for the likely conditions for the next 2 fortnightly time periods, as well as one and two months beyond that (starting mid January and February) (CSIRO 2015).

**Chlorophyll / Productivity:**

The clearest recent satellite image of chlorophyll distribution is from the 17<sup>th</sup> December 2015 (Figure 6). Areas of what would appear as “dirty water” (from vessels and planes) are located below the Head of the Bight and to the east of Kangaroo Island.

Comparing to a similar point in time coming into the previous fishing season – on December 19<sup>th</sup> 2014, the productivity 2014 was lower in the western GAB, lower below Eyre Peninsula and similar around the Sanders Banks area.

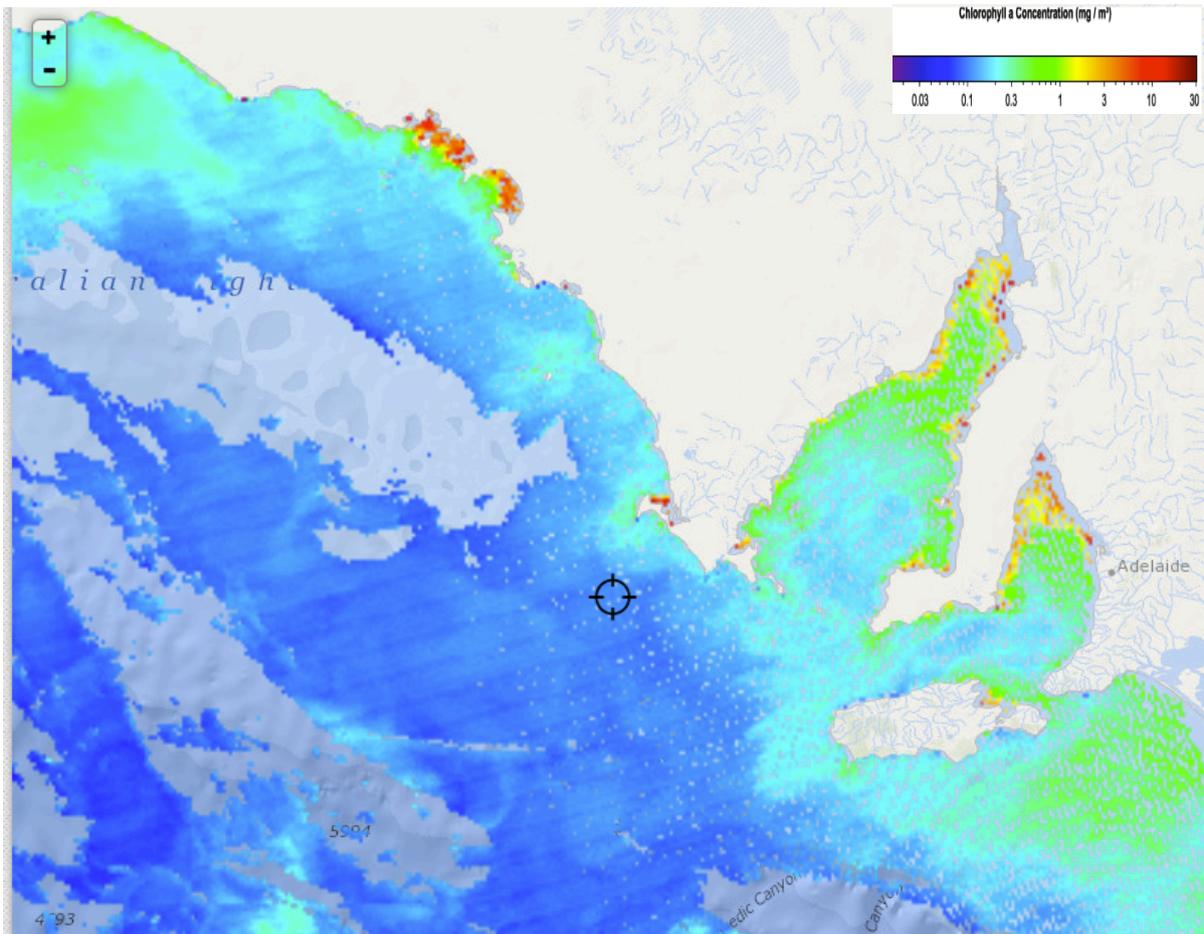


Figure 6: Processed satellite image of chlorophyll taken on the 17<sup>th</sup> December 2015 (FishTrack 2015).

**Useful Websites:**

<http://www.bom.gov.au>

<http://www.csiro.au>

<http://www.fishtrack.com>

<http://www.oceancurrent.imos.org.au>

<http://www.cmar.csiro.au/gab-forecasts/index.html>

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