

Climate and Oceanographic Summary, Great Australian Bight 2016 - 9

Kirsten Rough – 28th 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 continue to warm, but are now being influenced by the upwelling system.

The main thermal front extends from on the shelf 134°00'E x 34°35'S to beyond the shelf break 134°16'E x 35°12'S with breakaway pockets of warmer water to the east of this. Some of these extend to the Rocky Island area.

Cabbage Patch has lots of patches water with mixed temperatures ranging from 17°C to 18°C.

Strong upwelling was visible on images along the South East of SA, and cool water extends along the southern and western coastline of Eyre Peninsula 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):

The upwelling is now influencing sea surface temperatures for the central to eastern GAB area; plots over the previous 2-weeks are shown in Figure 1 (satellite image on the left and the temperature along the shelf break in the corresponding graph on the right).

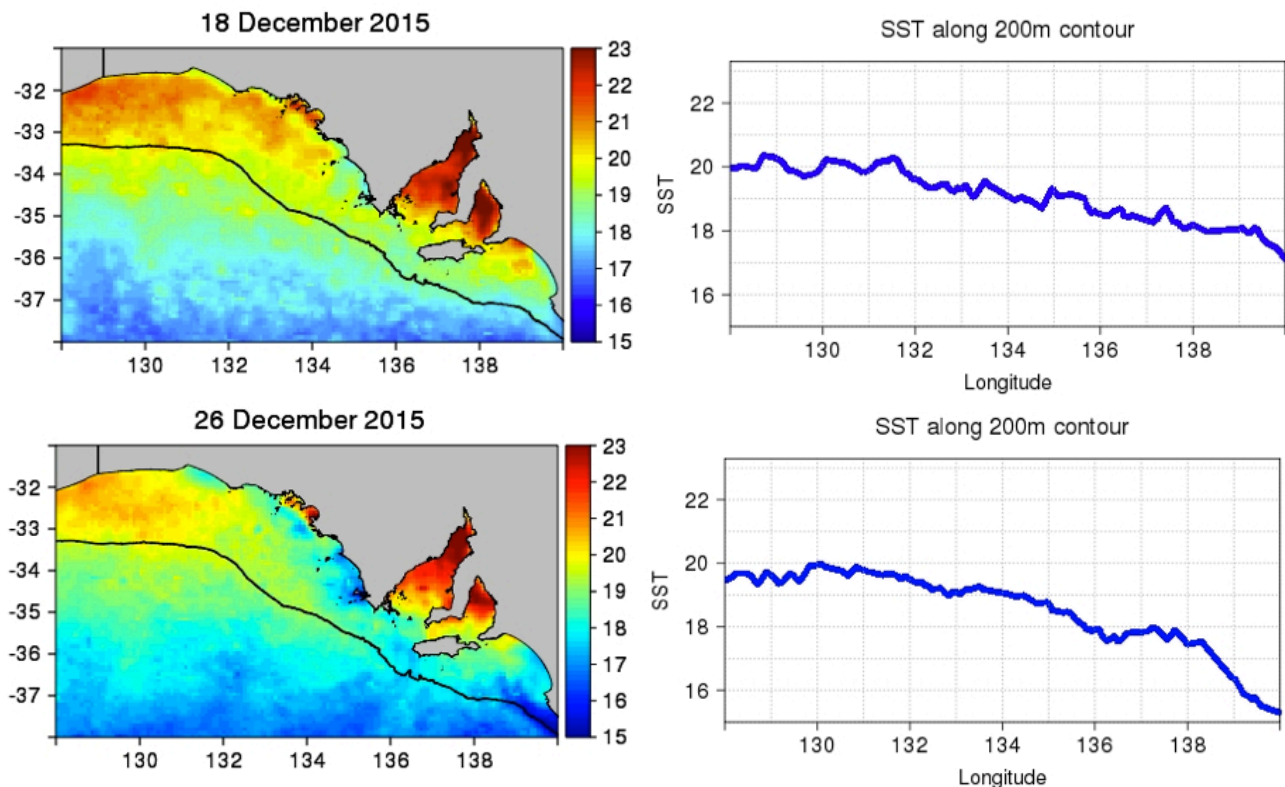


Figure 1: Snapshots of sea surface temperatures across the Eastern GAB over the past 2 weeks, satellite image on left and graph of temperature along the shelf break (black line) on the right (CSIRO 2015).

Specific Sea Surface Temperatures at some of the key fishing locations historically, and from recent years are detailed in Table 1, (and shown in Figure 2).

Table 1: Sea Surface Temperature for 28th December 2015, at some important historic and recent catching areas.

131°00'E 33°05'S = 19.0°C	132°00'E 33°23'S = 18.6°C
133°00'E 34°05'S = 18.4°C	134°00'E 34°15'S = 18.2°C
Yatala Reef 18.7°C	Cannan Reef 18.3°C
SW Rocky Island 18.1°C	Cabbage Patch area 17 - 18°C
SW Cape de Cudiac 17.1°C	Young Rocks area 17.6°C
SE Pelorus Rocks 17.8°C	Sanders Banks area 17.9°C

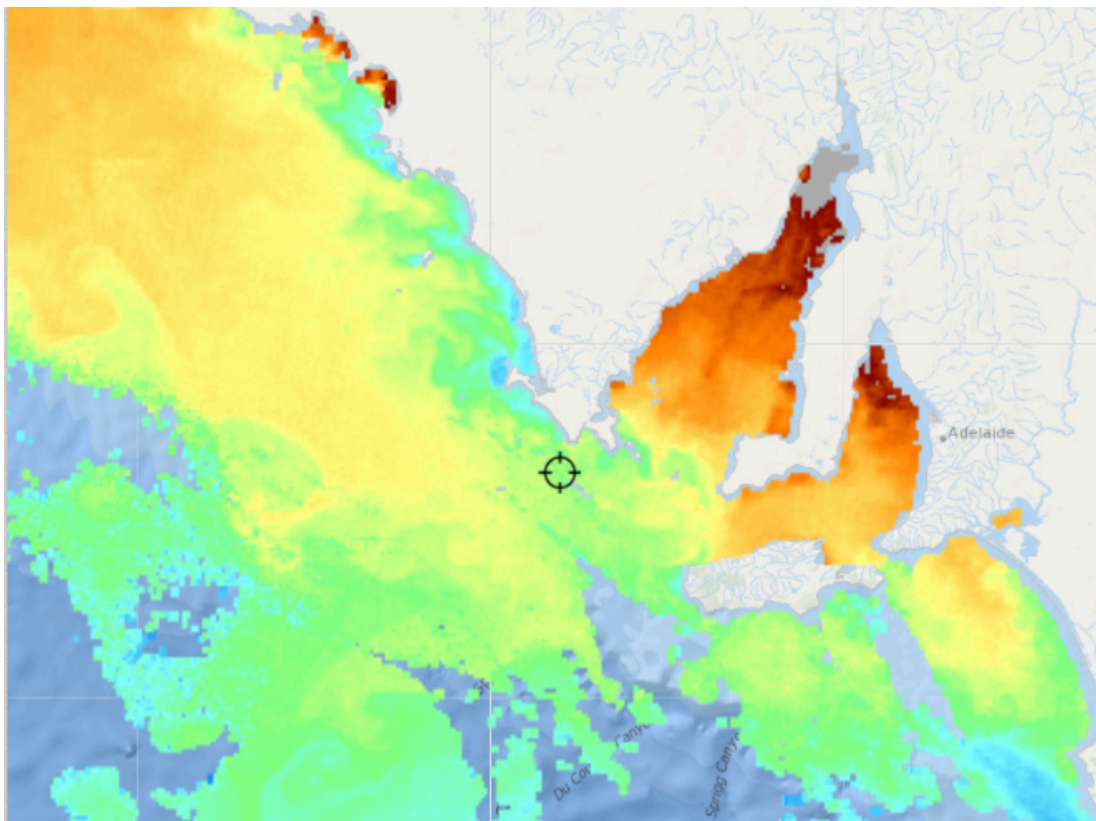


Figure 2: A satellite image from the 28th December 2015 showing an area extending from the Head of the Bight to the South East of SA; the cursor is located on a band of 17.4°C (note the areas with no colour are obscured by cloud) (FishTrack 2015).

From a habitat perspective, how the situation now compares to a similar point in time last season can be seen in Figure 3; 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 now extends further to the east than for the same point in time coming into the previous season.

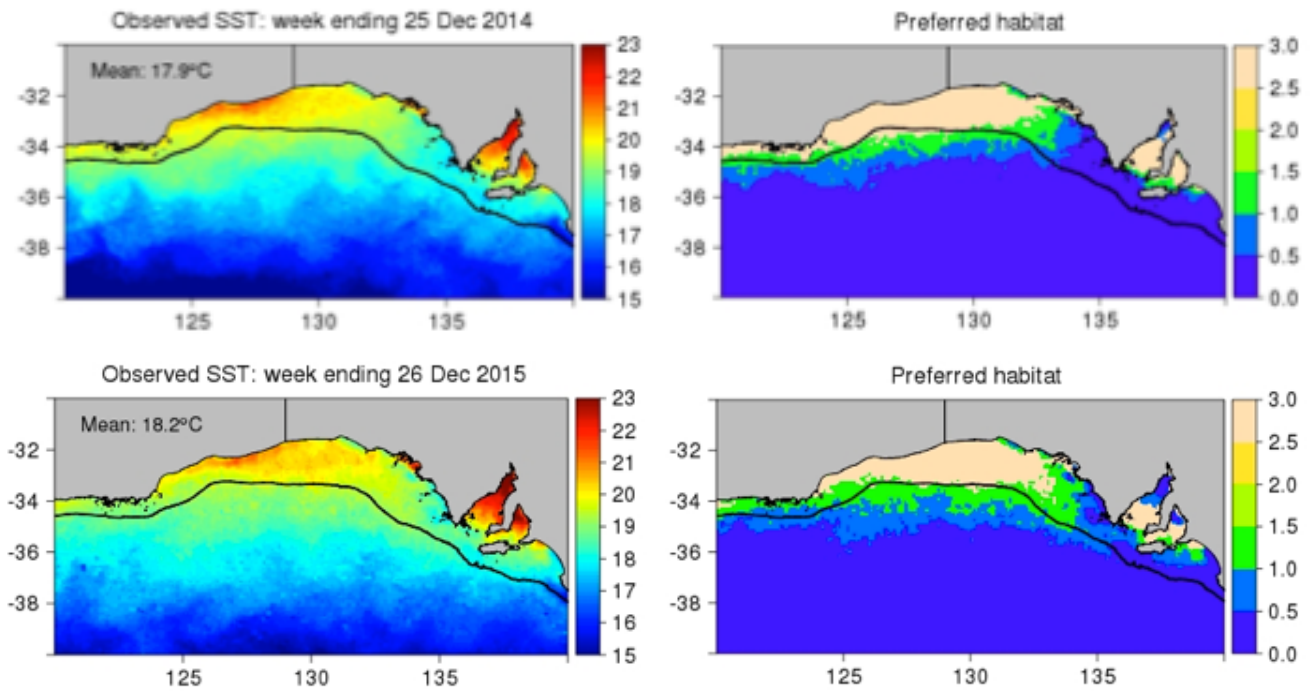


Figure 3: Comparison of SST and preferred habitat distribution for this point in time coming into the last season (top) and the situation now (bottom image) (CSIRO 2014; 2015).

Forecast SST and SBT Habitat:

The medium-term forecasts of conditions in the GAB can be seen in Figure 4. 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”. From early January catching areas are likely to extend into Young Rocks and more easterly areas. How this plays out will be influenced by the upwelling situation (and this largely dependent on local weather patterns – so will continue to track and report via these updates).

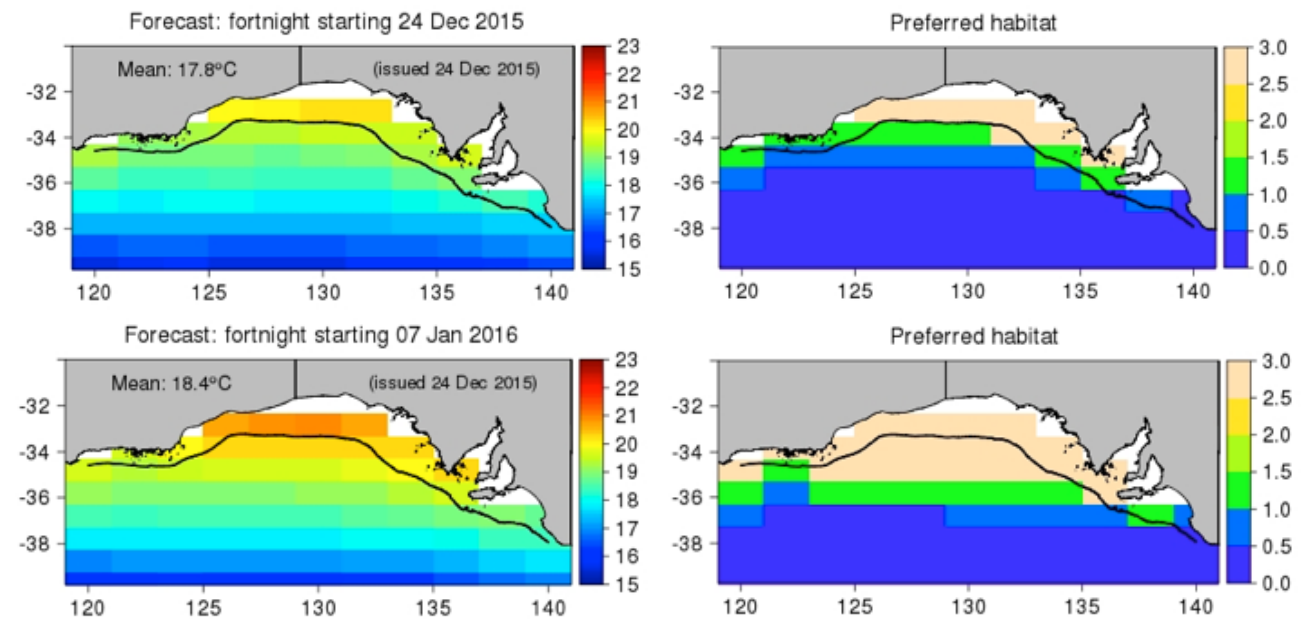


Figure 4: SBT Habitat forecasts issued on the 24th December for the likely conditions for the next 2 fortnightly time periods (CSIRO 2015).

Chlorophyll / Productivity:

The clearest recent satellite images of chlorophyll distribution are from the 27th December 2015 (Figure 5). Areas of what would appear as “dirty water” (from vessels and planes) are located below the Head of the Bight, to the east of Kangaroo Island and through the upwelling areas of the South East and along the coastal fringe of Eyre peninsula.

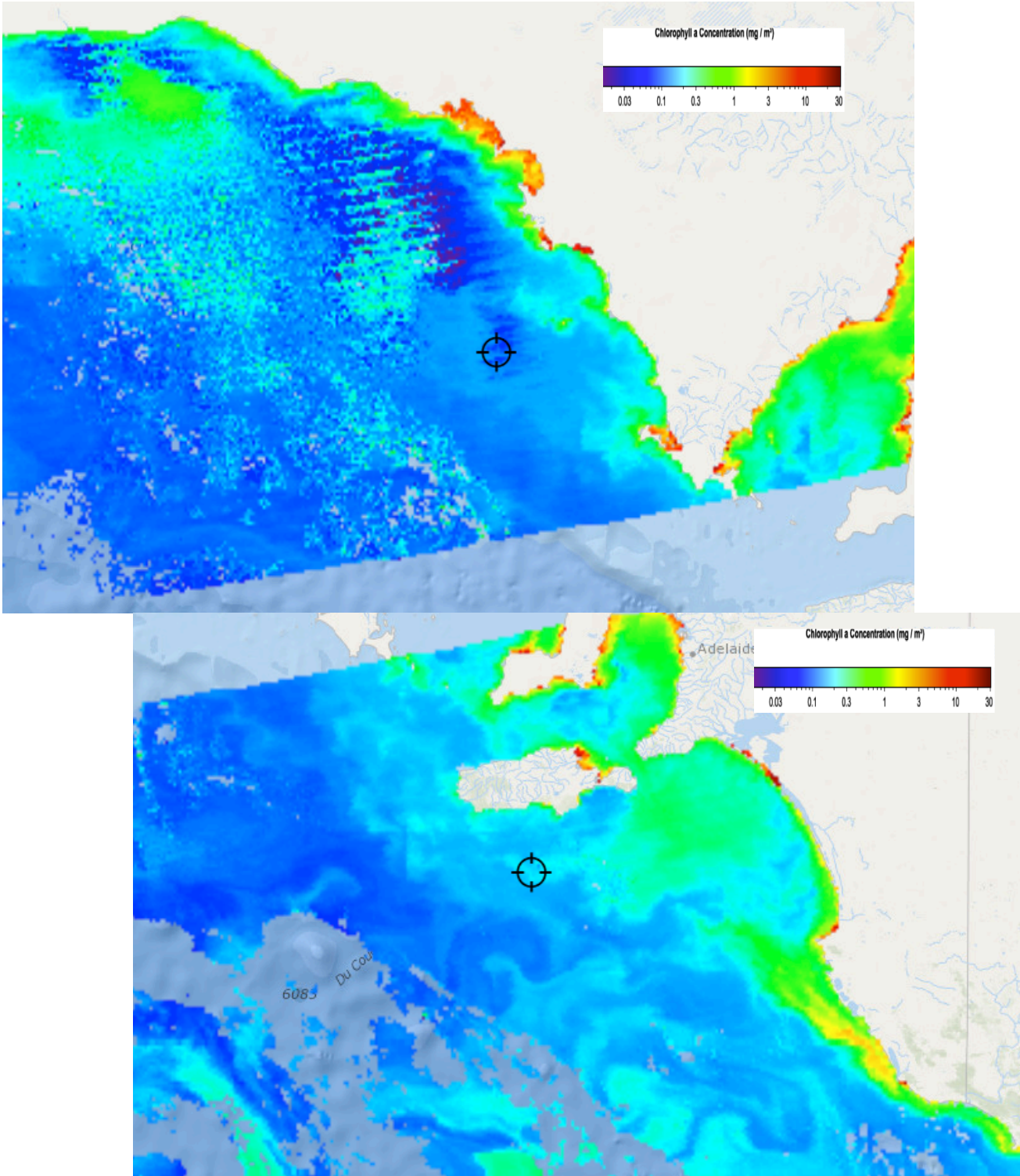


Figure 5: Processed satellite images of chlorophyll taken on the 27th December 2015 (FishTrack 2015).