

Climate and Oceanographic Summary, Great Australian Bight 2017 - 6

Kirsten Rough – 5th December 2016

Summary:

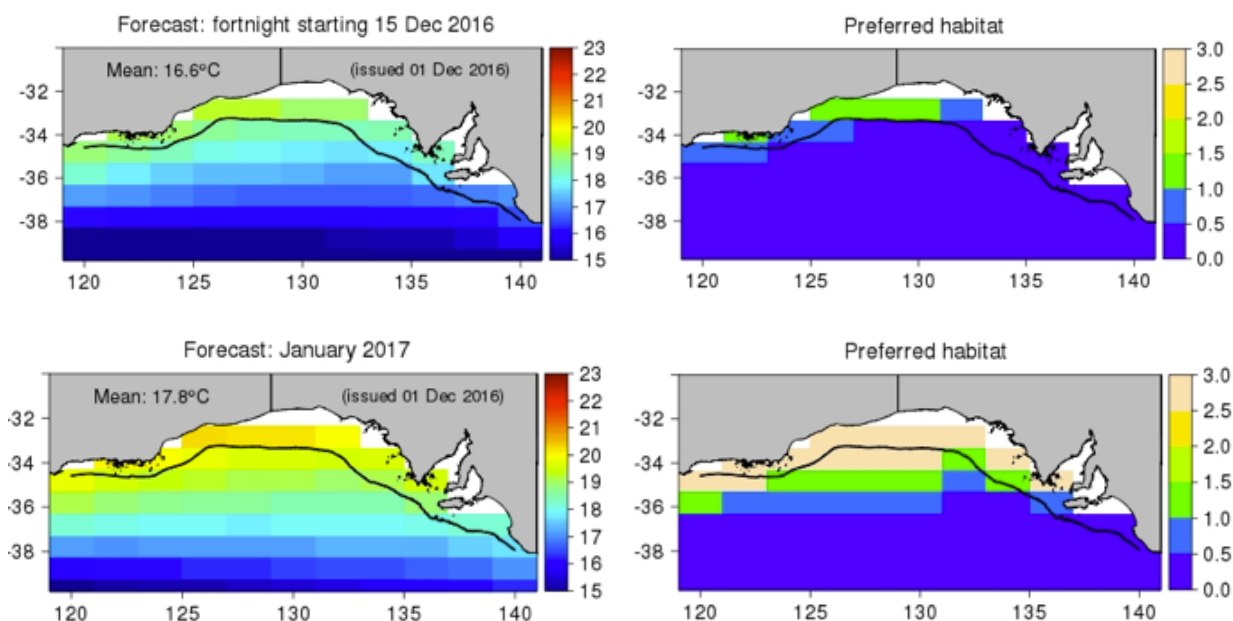
The Sea Surface Temperature situation in the Great Australian Bight continues to warm slowly. Longer-term GAB forecasts are suggesting cooler conditions persisting through December, but improving considerably in January including areas closer to Port Lincoln.

The upwelling system continues to be clearly seen by cool surface waters in the South East of SA and this week also along the coastal fringe of western lower Eyre Peninsula and Kangaroo Island.

Productivity levels along the shelf break and below Kangaroo Island are starting to resemble conditions more favourable for SBT.

Forecast Sea Surface Temperature and SBT Habitat:

Updated **longer-term forecasts** of conditions in the GAB coming into the 2017-fishing season can be seen in Figure 1. In these images the plot on the left shows forecasted sea surface temperature and the plot on the right shows the areas that have conditions suitable for ranch-sized Southern Bluefin Tuna. Preferred habitat includes areas with a value of one or more (i.e. green to bone colour). These are indicating that conditions will continue to warm slowly with some of the inshore areas likely to have early entry SBT in the latter half of December. But more importantly, through January and continuing through February the conditions will be suitable for the majority of SBT over a wide area including below Eyre Peninsula.



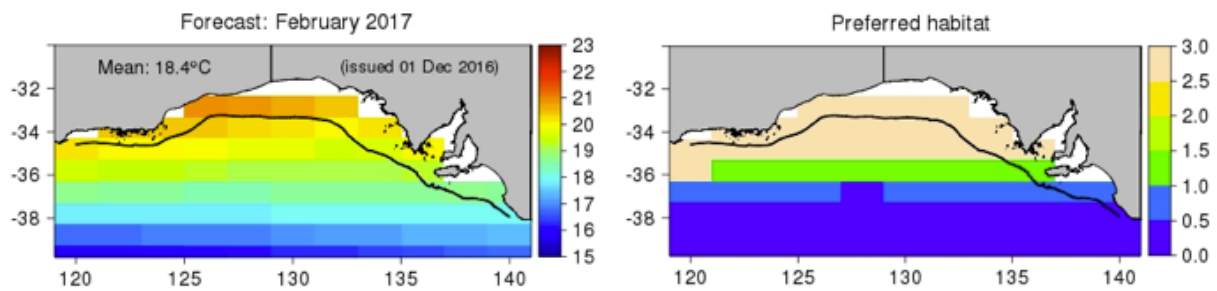


Figure 1: Sea Temperature and SBT Habitat forecasts issued on the 1st December 2016 coming into the 2017-fishing season. Top image shows second half of December; middle image, January and bottom image shows conditions through February (CSIRO 2016)

GAB Sea Surface Temperature (SST):

The broader GAB area remains cool and there continues to be a small amount of warmer water feeding around the southwest corner of Western Australia (Figure 2). The Gulfs and shallower regions are now between 17 and 18.5°C. The cooler water of the upwelling is clearly visible along the Bonney coast in the South East, at the western tip of Kangaroo Island and the western coastline of lower Eyre Peninsula, Figure 3. Please note that for greater clarity to help with identifying finer scale differences in temperature, Figure 3 has a 5-degree temperature scale range compared with the larger image of Figure 2 where the same colours span an 8-degree range.

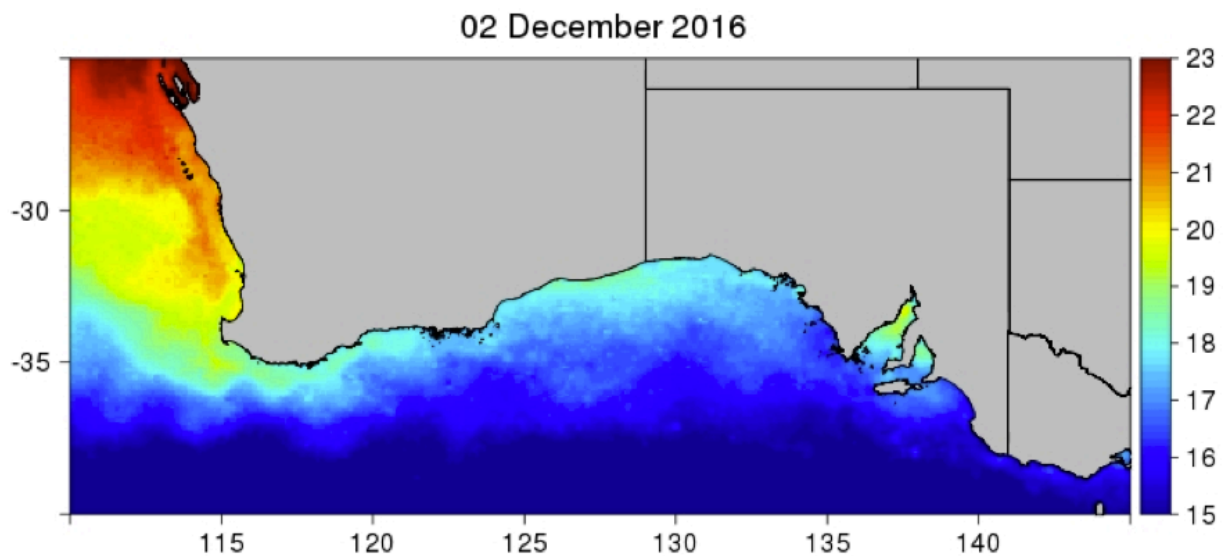


Figure 2: Sea Surface Temperature across southern Australia over the past week (CSIRO 2016).

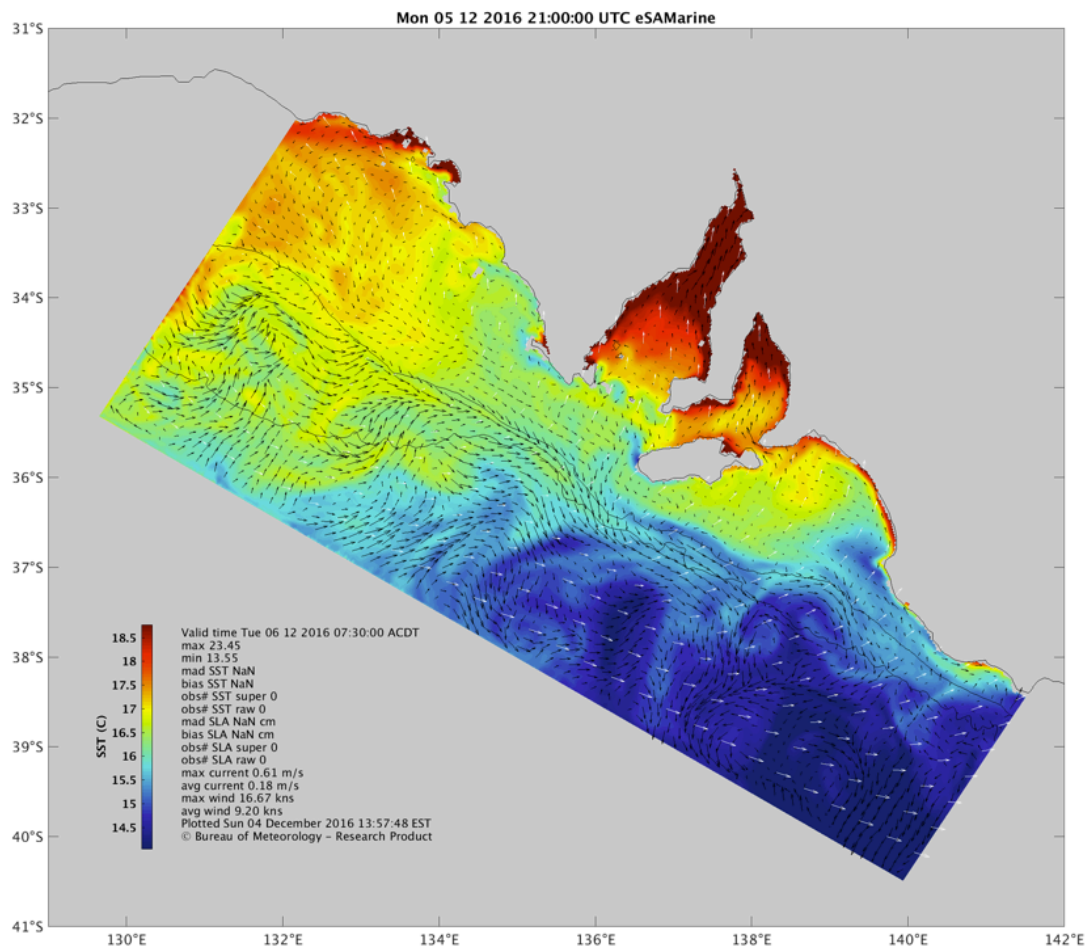


Figure 3: Snapshot of the [actual Sea Surface Temperature](#) on the 5th December 2016 taken from the draft e-SA Marine Project. Please note that the temperature scale for this map ranges from 14.5 to 18.5°C. Also shown are water currents (black arrows) wind direction (white arrows) and information on the average and maximum water current and wind speeds for the sea area outlined (SARDI-BoM 2016).

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 4.

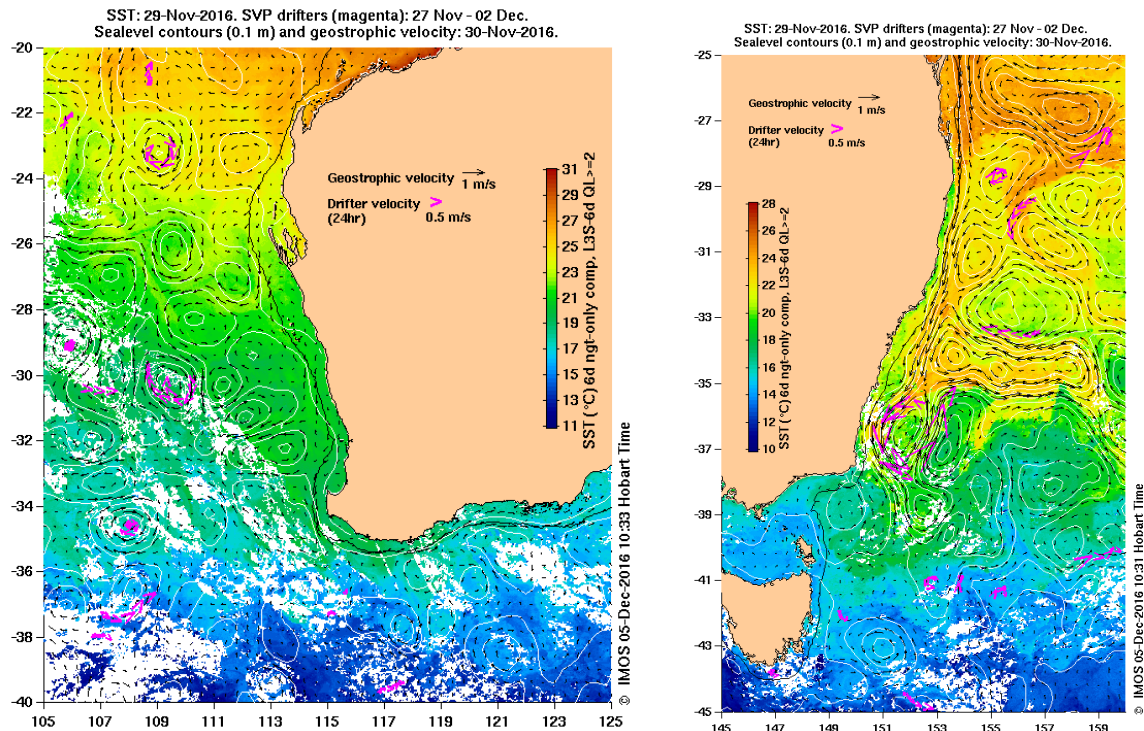


Figure 4: Sea Surface Temperatures adjacent to the west coast (left) and the east coast (right) of Australia over the past week (IMOS 2016). Please note that the temperature scales differ between the two images; the WA ranges from 11 to 31°C and the NSW/Tas image ranges from 10 to 28°C.

Chlorophyll/productivity levels:

Productivity levels across the GAB are shown in Figure 5, in these images the aqua to yellow are within the preferred range of conditions for SBT (CSIRO archival tag studies). A single snapshot from an individual satellite pass is shown in Figure 6; this is showing water becoming suitable for tuna below Eyre Peninsula and Kangaroo Island.

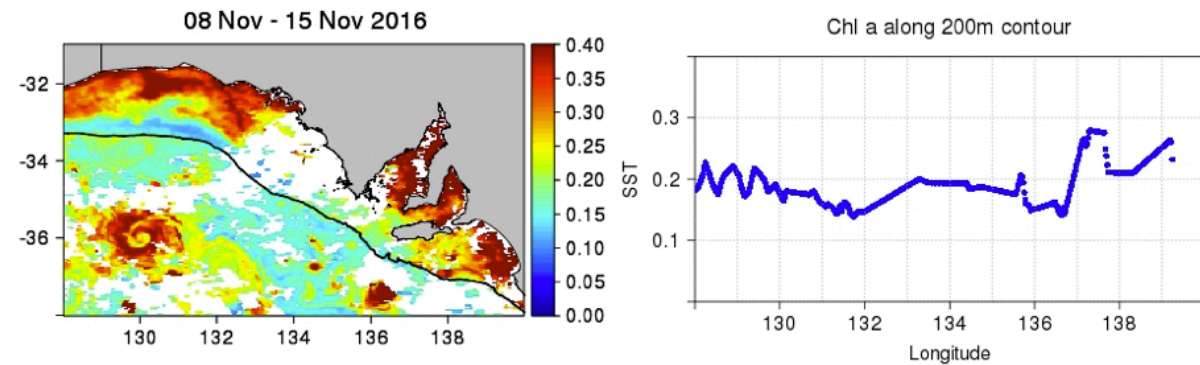


Figure 5: Productivity levels across the Great Australian Bight, plot from most recent block of clear satellite images (left) and chlorophyll levels along the 200m-depth contour (right) (CSIRO 2016).

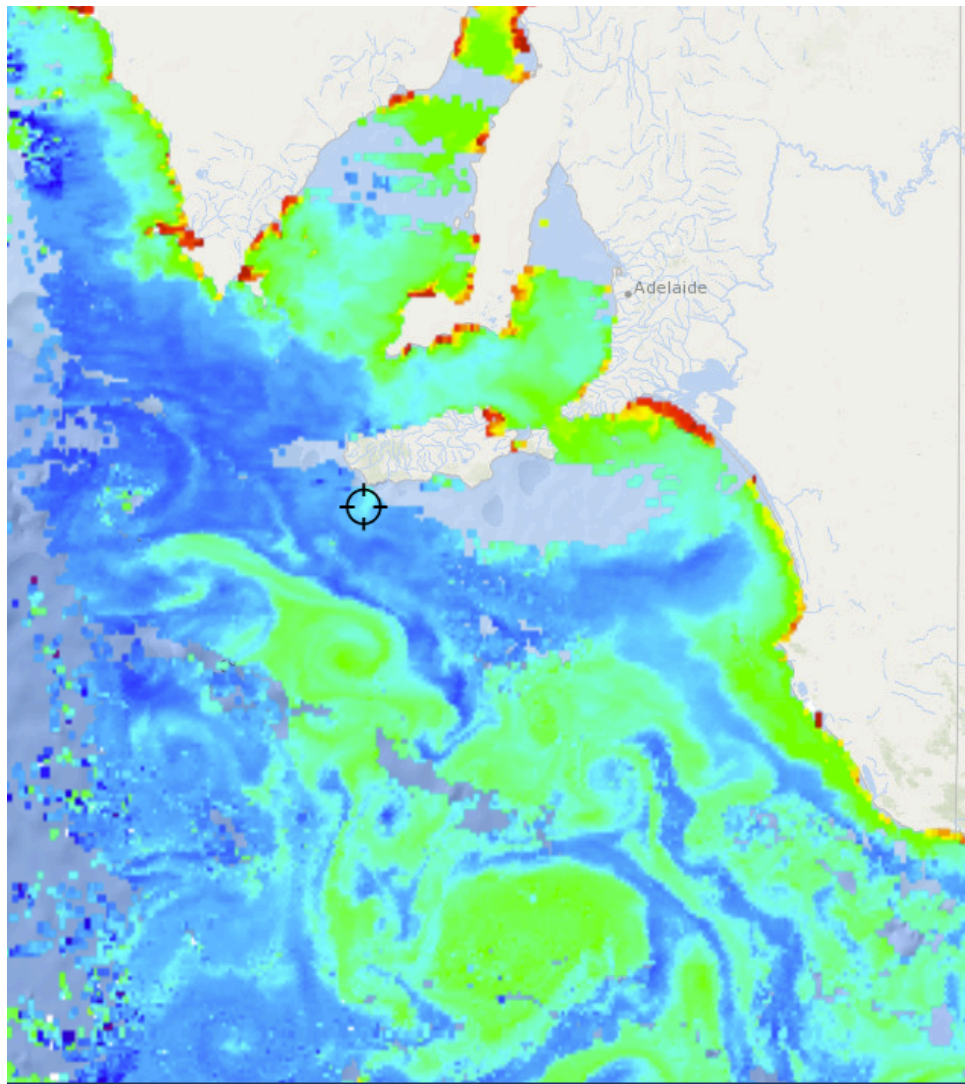


Figure 6: Chlorophyll plot from 2nd December 2016, the grey and dark blue pixelated areas are due to cloud cover (FishTrack 2016).