

# Climate and Oceanographic Summary, Great Australian Bight 2014 - 12

Kirsten Rough – 22<sup>nd</sup> December 2013

This is the twelfth 2014-season update of sea surface temperature, ocean currents and chlorophyll distribution in the Great Australian Bight (GAB). If anyone has any questions or further suggestions please call or email (details appear at the end of this document).

## Summary:

The general GAB sea temperatures have increased over the past week and now range between 18 and 20.6°C, but these are slightly cooler than those at the same point in time last season (except at 135 where SST is exactly the same).

Actual Sea Surface Temperature (SST) this past week:

- Western GAB at 130°E 33°S is 20°C
- Central GAB at 133°E 34°S is 19.5°C
- Eastern GAB at 135°E 35°S is 19.2°C

The Leeuwin Current (LC) now extends as a slither along the south coast of WA to about Albany. The general influence of the Indian Ocean is still slowing the progress of the Leeuwin Current down the western WA coastline.

The next full moon is on the 18<sup>th</sup> January.

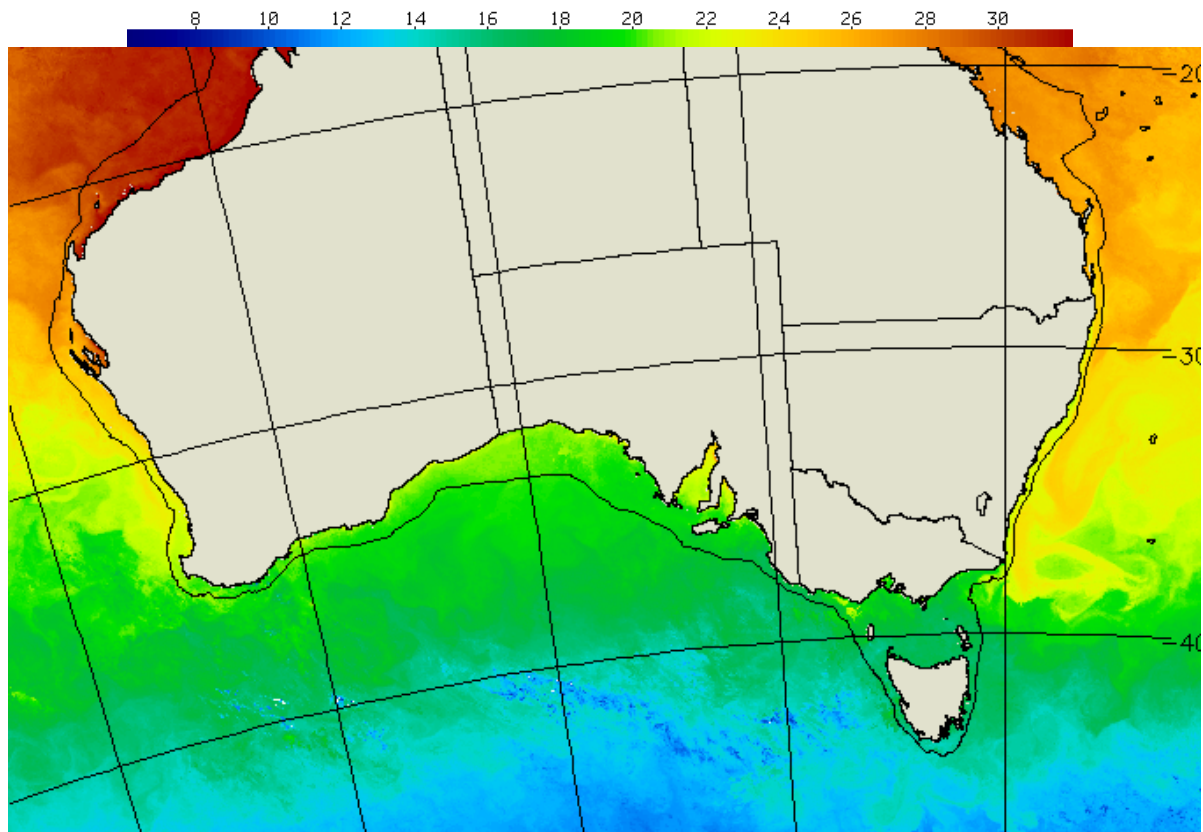
## GAB Sea Surface Temperature (SST):

An update of the most recent water temperatures around Australia and through the GAB fishing grounds to the 21<sup>st</sup> December 2013 can be seen in Figure 1 and Figure 2. The temperature through the GAB has warmed probably in response the hot air temperatures experienced this week. Temperatures now range from 18 to 20.6°C. This week there are several isolated patches of warm water throughout the shelf area of the Bight and extending right through to Victoria. But generally temperatures remain slightly cooler than they were at the same point in time last year.

The SST at a number of specific sites across the fishing grounds, averaged for the week to the 20<sup>th</sup> December are shown in Table 1.

**Table 1: Sea Surface Temperatures at specific locations along the shelf and shelf break of the Great Australian Bight, co-ordinates as degrees, minutes, seconds (CSIRO 2013).**

130°E 33°S is 20.0°C	131°E 32°S is 20.0°C	131°E 33°S is 19.8°C	132°E 33°30'S is 19.5°C
133°E 34°S is 19.5°C	134°E 34°30'S is 18.4°C	135°E 35°S is 19.2°C	136°E 35°30'S is 19.0°C



Mean SST from 15/12/2013 to 20/12/2013  
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Figure 1: Sea Surface Temperature around Australia for the 5 days to 20<sup>th</sup> December 2013 (source: CSIRO 2013 <http://www.marine.csiro.au>).

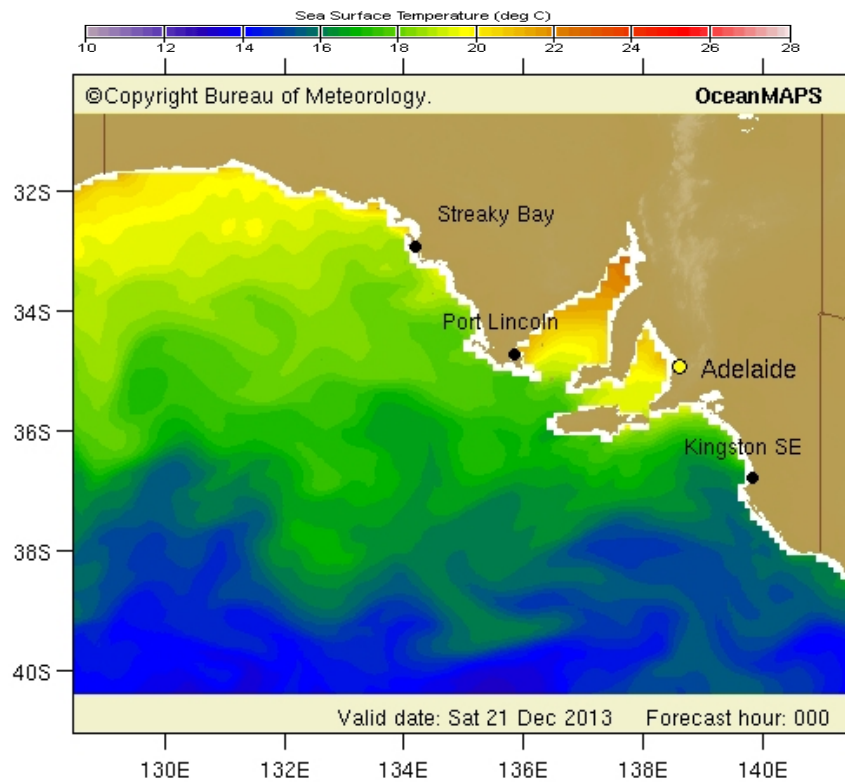


Figure 2: South Australian sea surface temperature from the Bureau of Meteorology website for the 3 days to the 21<sup>st</sup> December 2013 (source: Bureau of Meteorology 2013; <http://www.bom.gov.au>).

### Leeuwin Current Temperature:

Sea surface temperatures and ocean currents around the Western Australian coastline for the 16<sup>th</sup> December 2012 and 2013 are shown below (Figure 3). The actual SST off the coast of North West Cape (Exmouth) is 27.6°C, out from Cape Inscription (Shark Bay) is 25.2°C, out from Cape Leeuwin (Augusta) is 19.6°C and out from Esperance is 19.2°C (CSIRO 2013).

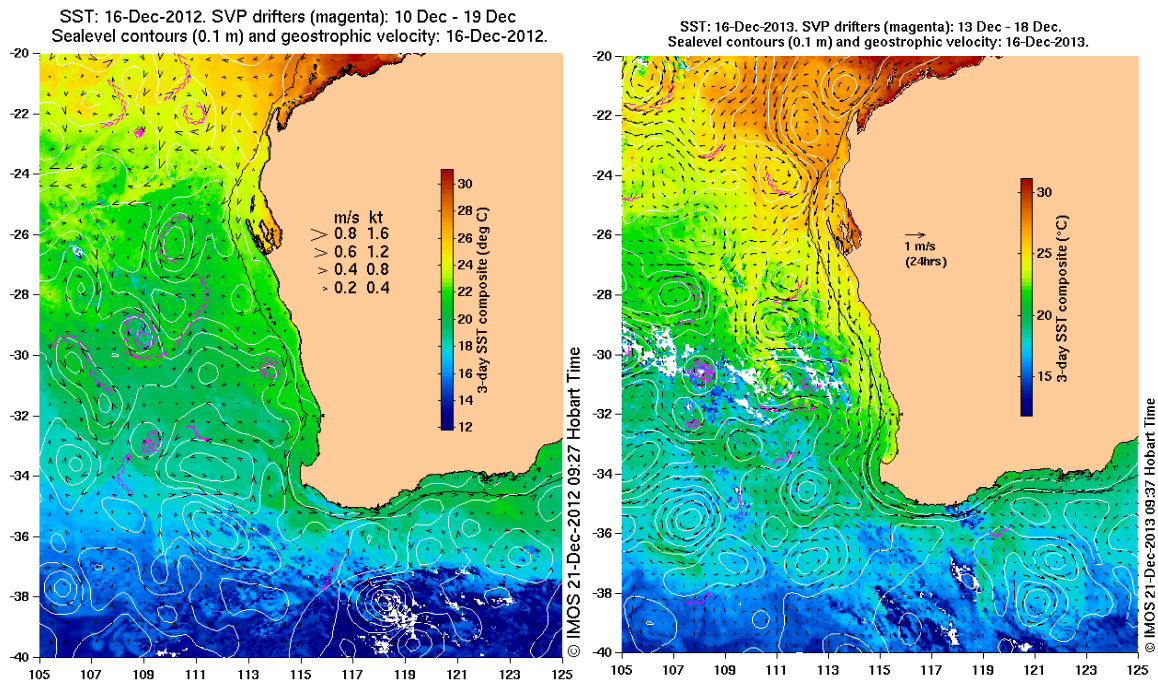


Figure 3: A comparison of the Leeuwin Current sea surface temperature and current speed and direction for the 16<sup>th</sup> December 2012 (left), 2013 (right) (Source: IMOS 2013; <http://www.oceancurrent.imos.org.au>).

### Chlorophyll / Productivity:

Cloud cover especially along the edge of the shelf has blocked satellite images of the GAB for much of the past week, the clearest image is from last Thursday, the 19<sup>th</sup> (Figure 4). Productivity is generally concentrated along the coastal fringe, but there is a large area west of Ceduna that extends from the coast across the entire shelf area. Whilst not shown in the picture below, there is also a very large area well south of the GAB with high chlorophyll levels - this is located at around latitude 37°S, between longitudes 130 and 133°E. Will continue to monitor whether this disperses or where it moves.

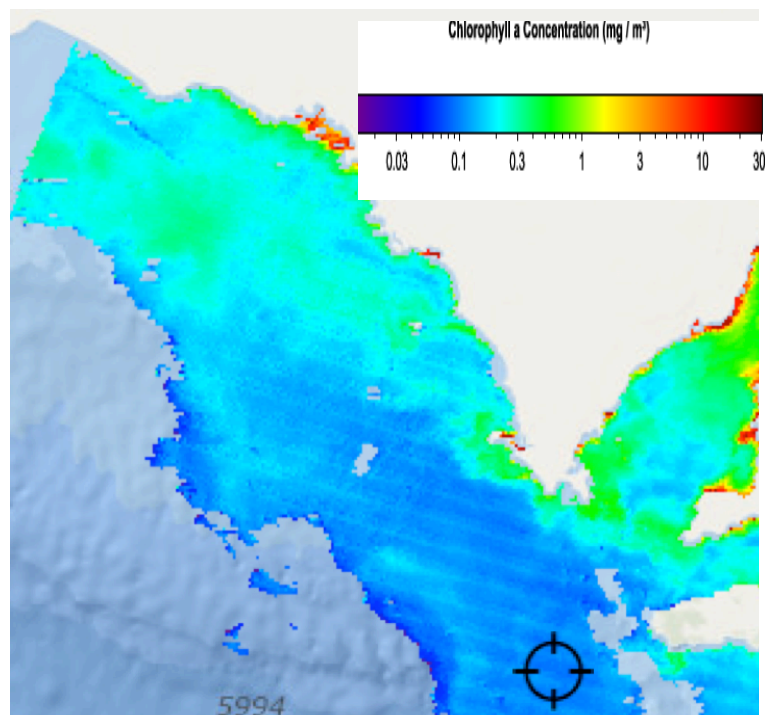


Figure 4: Areas of productivity within the GAB on the 19<sup>th</sup> December 2013 (source: <http://www.fishtrack.com>).

**Useful Websites:**

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

<http://www.csiro.au>

<http://www.fishtrack.com>

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

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