

Climate and Oceanographic Summary, Great Australian Bight 2014 - 9

Kirsten Rough – 2nd December 2013

This is the ninth 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 risen by about a degree over the past week. Upwelling in the eastern section of the GAB is keeping inshore temperatures lower than those along the shelf edge.

Actual Sea Surface Temperature (SST) this past week:

- Western GAB at 130°E 33°S is 18.4°C
- Central GAB at 133°E 34°S is 17.9°C
- Eastern GAB at 135°E 35°S is 17.4°C

The warmth of the Leeuwin Current (LC) is still only just rounding the southwest corner of WA, and the current speed remains similar to this time last year.

Productivity is increasing in areas of cool water associated with the upwelling.

The next full moon is on the 18th December.

An update on climate systems will be provided in the next issue.

GAB Sea Surface Temperature (SST):

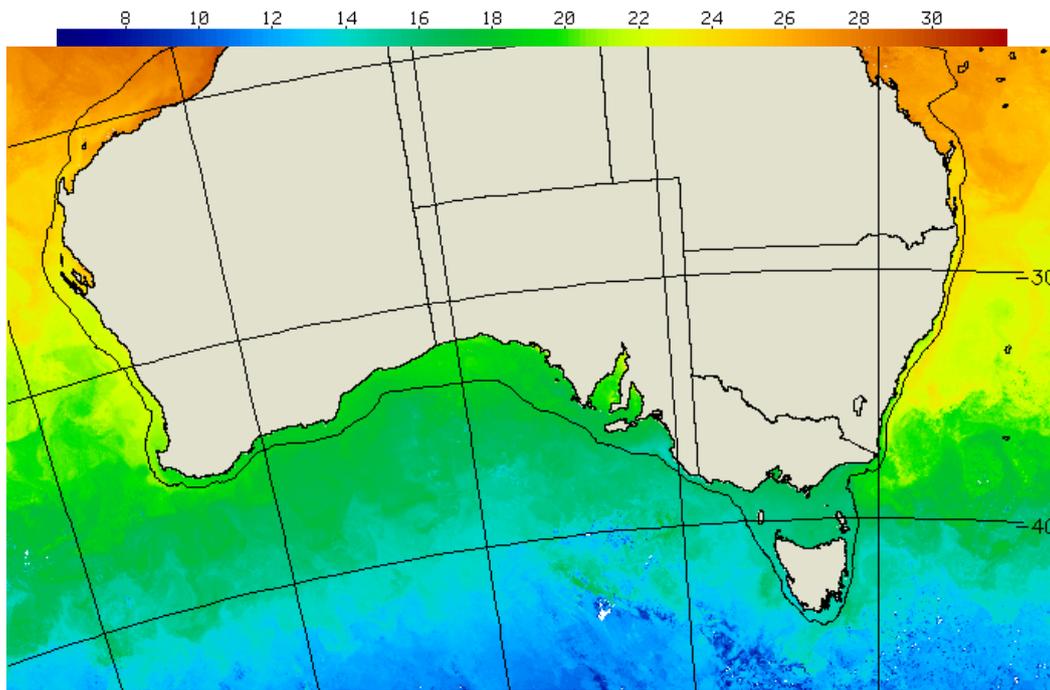
An update of the most recent water temperatures around Australia and through the GAB fishing grounds to the 1st December 2013 can be seen in Figure 1 and Figure 2. The temperature through the GAB ranges between 15.6 to 19.3°C. The western and central GAB now have several areas warmer water suitable for SBT.

The cold water is associated with the upwelling that occurred between the 11th and 17th of November. This continues to push to the northwest along the west coast of Eyre Peninsula. HF radar last week recorded flows of about 40cm per second (IMOS 2013). This upwelling was a strong event, especially so early in the season and is due to the strong and persistent southeasterly winds experienced through the previous few weeks.

The SST at a number of specific sites across the fishing grounds, averaged for the week to the 30th November 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 18.4°C	131°E 32°S is 18.4°C	131°E 33°S is 18.5°C	132°E 33°30'S is 17.7°C
133°E 34°S is 17.9°C	134°E 34°30'S is 17.7°C	135°E 35°S is 17.4°C	136°E 35°30'S is 16.3°C



Mean SST from 25/11/2013 to 30/11/2013
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Figure 1: Sea Surface Temperature around Australia for the 5 days to 30th November 2013 (source: CSIRO 2013 <http://www.marine.csiro.au>).

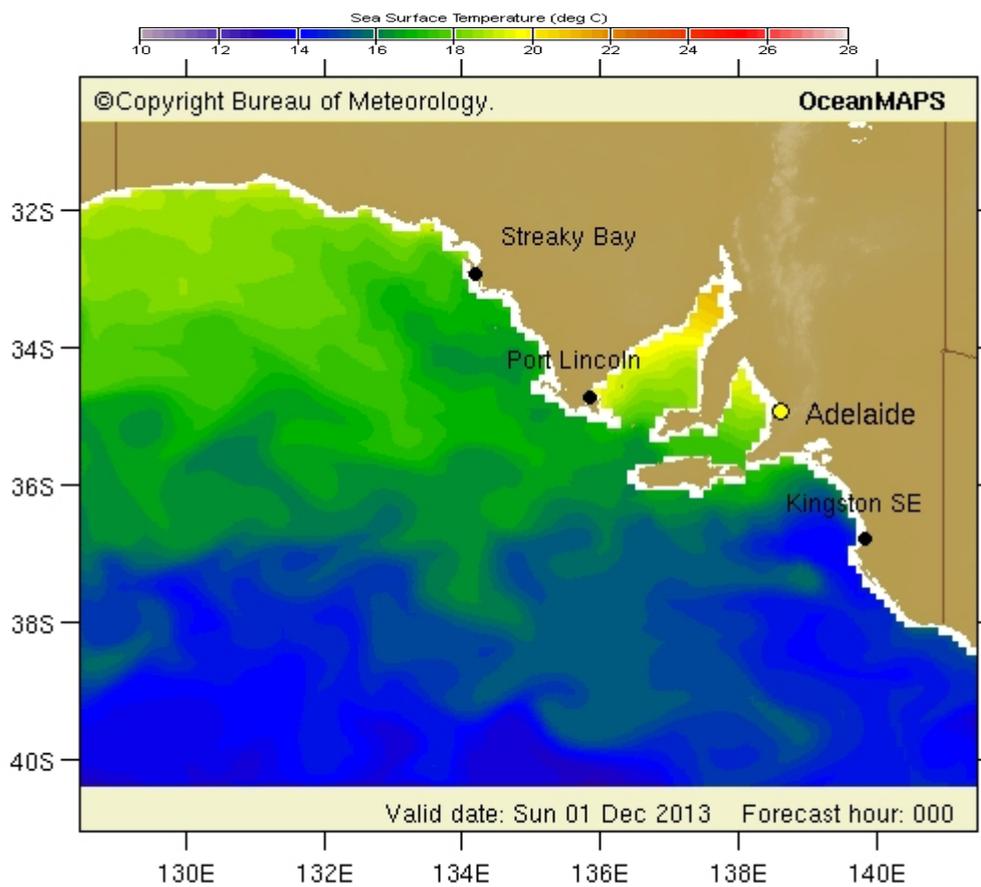


Figure 2: South Australian sea surface temperature from the Bureau of Meteorology website for the 3 days to the 1st December 2013 (source: Bureau of Meteorology 2013; <http://www.bom.gov.au>).

Leeuwin Current Temperature:

Sea surface temperatures and ocean currents around the Western Australian coastline for the 25th November 2012 and 2013 are shown below (Figure 3). The actual SST off the coast of North West Cape (Exmouth) is 24.4°C (with eddies up to 26°C), out from Cape Inscription (Shark Bay) is 23.0°C, out from Cape Leeuwin (Augusta) is 20.1°C and out from Esperance is 17.7°C (CSIRO 2013).

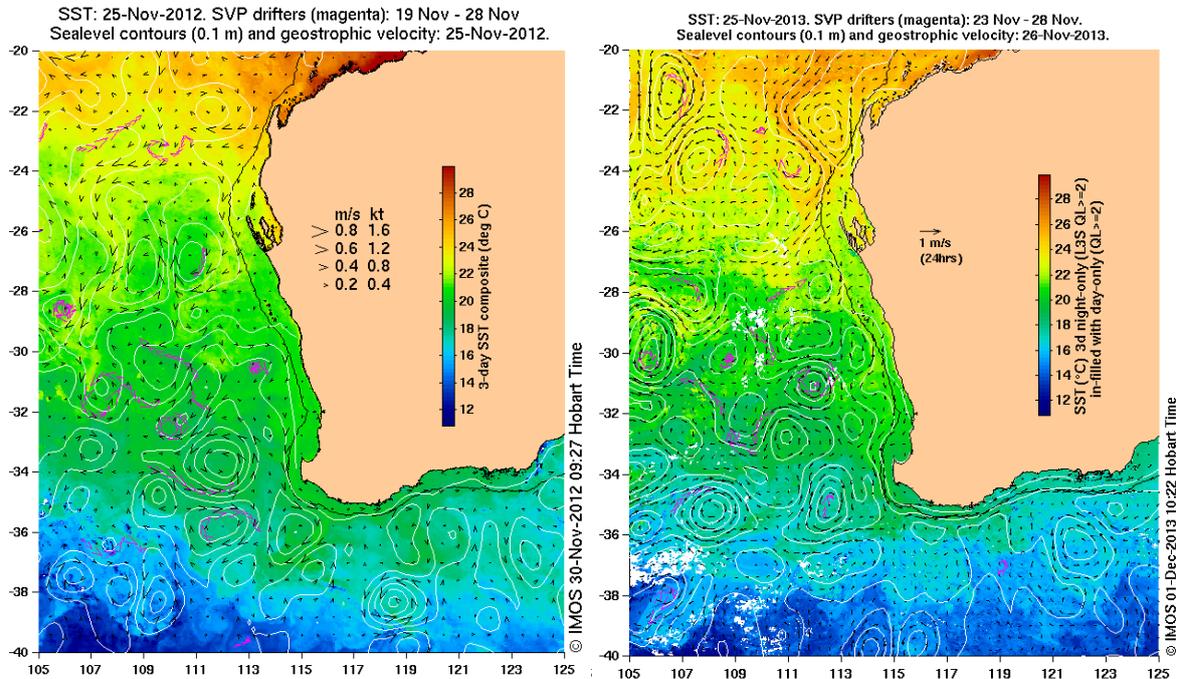


Figure 3: A comparison of the Leeuwin Current sea surface temperature and current speed and direction for the 25th November 2012 (left) and 2013 (right) (Source: IMOS 2013; <http://www.oceancurrent.imos.org.au>).

Chlorophyll / Productivity:

The latest satellite image showing where productivity is concentrated is shown below (Figure 4). A thick band of cloud has blocked the satellites image across the western portion of the GAB. A large patch of chlorophyll is present around lower and western Eyre Peninsula, (density around 0.5mg/m³). This is associated with the cool water of the upwelling mentioned in section on GAB SST (above).

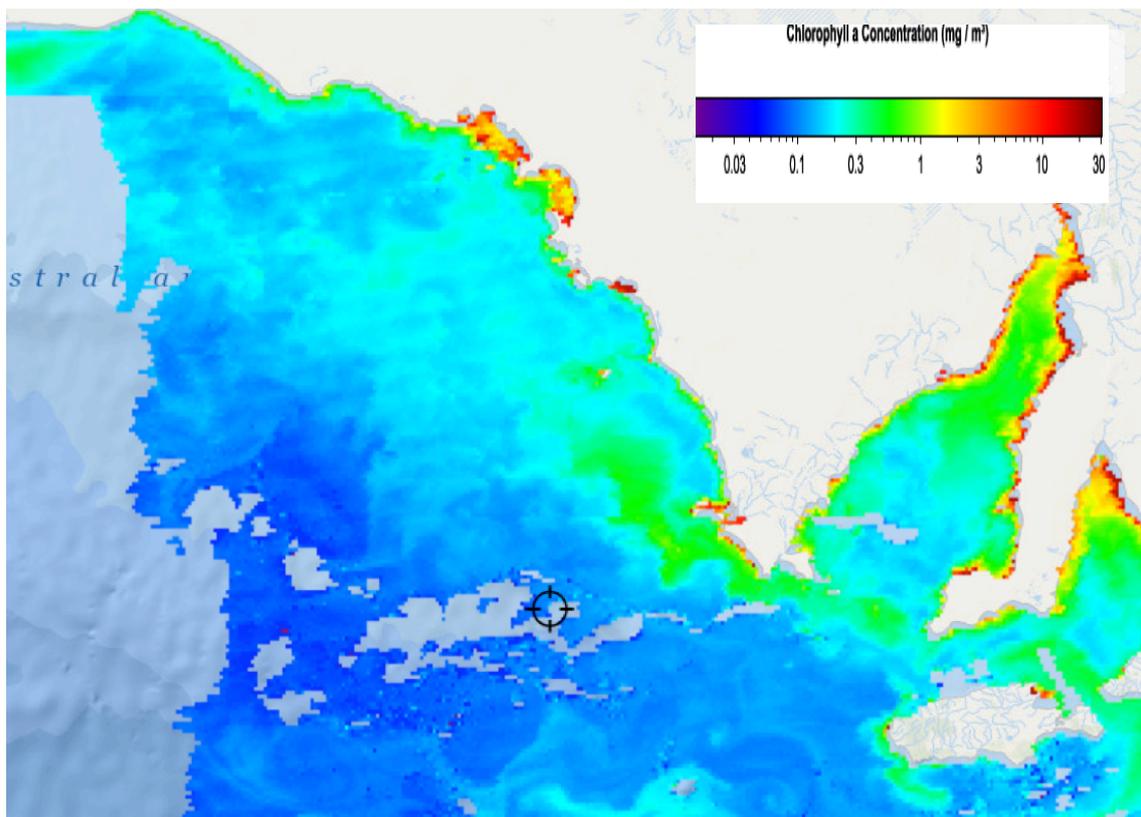


Figure 4: Areas of productivity within the GAB on the 29th November 2013 (source: <http://www.fishtrack.com>).

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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