

Climate and Oceanographic Summary for the Great Australian Bight No. 8

Kirsten Rough – 11th December 2012

This is the eighth update of sea surface temperature, ocean currents, chlorophyll distribution and climate status. If anyone has any questions or further suggestions please call or email.

Summary:

Sea Surface Temperature (SST) through the GAB is generally within the range of 18 – 21°C.

Temperature this week in the western area of the fishing grounds at 131°E 33°S has increased to 19.5°C and to 20.9°C to the east at 133°E 34°S.

The Leeuwin current continues to show a relatively 'normal' progression along the WA coastline, and warmer water continues to pass Cape Leeuwin. Actual SST out from Exmouth this week is 27.6°C, and remains similar at 20.1°C out from Cape Leeuwin.

Climate Status globally – This coming fishing season will be in the neutral phase of the ENSO climate cycle (i.e. not El Niño and not La Niña), and this is likely to continue until at least May 2013. This section will now be updated monthly with global trends of ocean temperatures.

Moon Phase: is currently a 'waning crescent' (only 5% full); the new moon is on the 13th December. The next full moon is on the 27th December.

Sea Surface Temperature and Ocean Currents:

An update of the water temperature across southern Australia to the 8th December and through the fishing grounds for the 10th December can be seen in Figure 1 and Figure 2. The temperature through the GAB is within the range of 18-21°C. General warming is occurring throughout, and there are some strong thermal fronts pushing through the Bight (Figure 2). Isolated hot pockets of 20°C are also present within the GAB and well south of the shelf break at 132°E 34.6°S (Figure 3). The SST at a number of specific sites averaged from 3rd to 8th December were obtained from the CSIRO (2012):

Streaky Bay has cooled to 21.7°C, and at some specific locations across the fishing grounds:

130°E 32.5°S is 19.3°C	131°E 32°S is 19.6°C	131°E 33°S is 19.5°C	132°E 33.5°S is 19.2°C
133°E 34°S is 20.4°C	134°E 34.5°S is 19.6°C	135°E 35°S is 18.7°C	135.5°E 35°S is 18.4°C

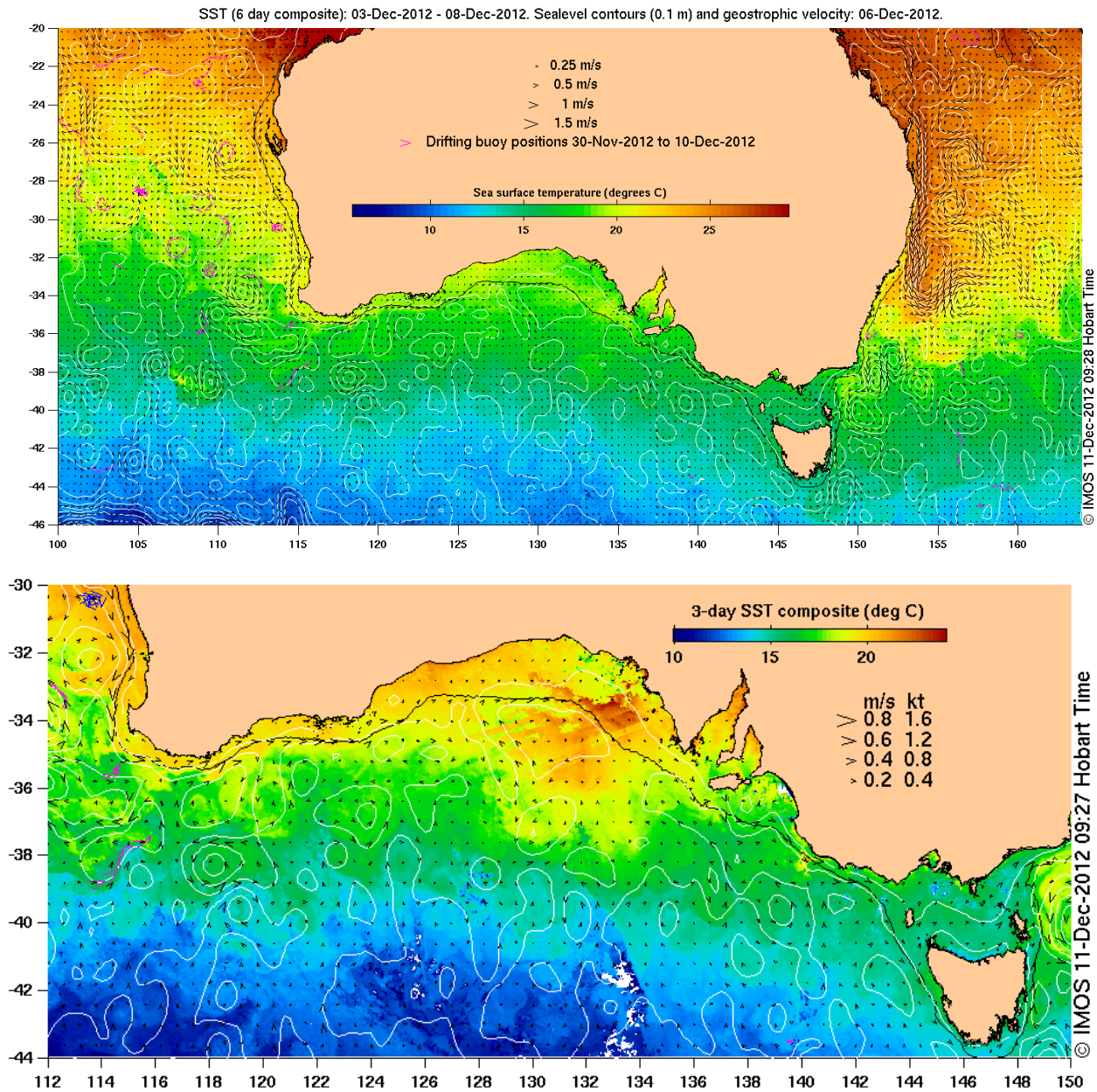


Figure 1: Sea surface temperature across southern Australia to the 8th December 2012, note there are differences in colour scale between the upper and lower maps (source: IMOS 2012; <http://www.oceancurrent.imos.org.au>)

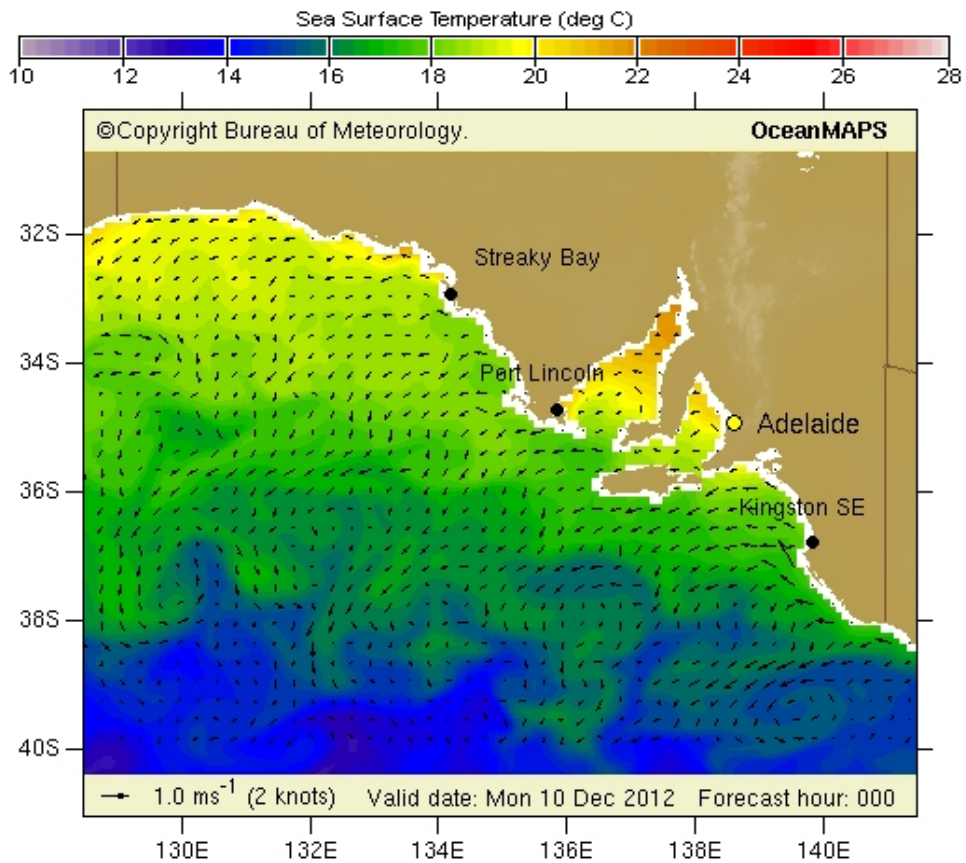
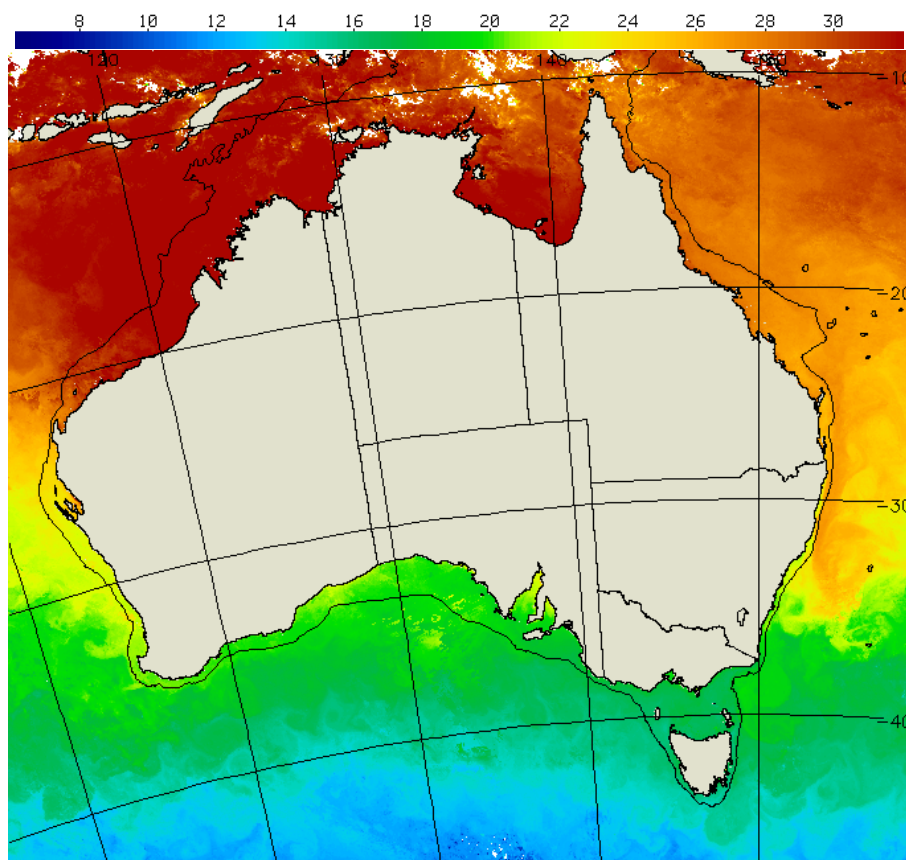


Figure 2: South Australian sea surface temperature and current direction from the Bureau of Meteorology website for the 3 days to the 10th December 2012 (source: Bureau of Meteorology 2012; <http://www.bom.gov.au>).



Mean SST from 05/12/2012 to 10/12/2012
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Figure 3: Sea Surface Temperature around Australia, note position of hot pockets to the south of the GAB (source: CSIRO 2012 <http://www.marine.csiro.au>)

Leeuwin Current Temperature and Currents:

Sea surface temperatures and ocean currents around the Western Australian coastline on the 5th December for this year and last year are shown below (Figure 4). As with the plots in previous updates, December 2012 does not have the intense coast hugging currents that were apparent coming into the previous fishing season. When comparing these maps, please be aware that the temperature colour scales are not exactly the same on each map. The actual SST off the coast of North West Cape (Exmouth) is currently 27.6°C, out from Cape Inscription (Shark Bay) is 23.3°C, out from Cape Leeuwin (Augusta) is 20.1°C and out from Esperance is 19.3°C (CSIRO 2012).

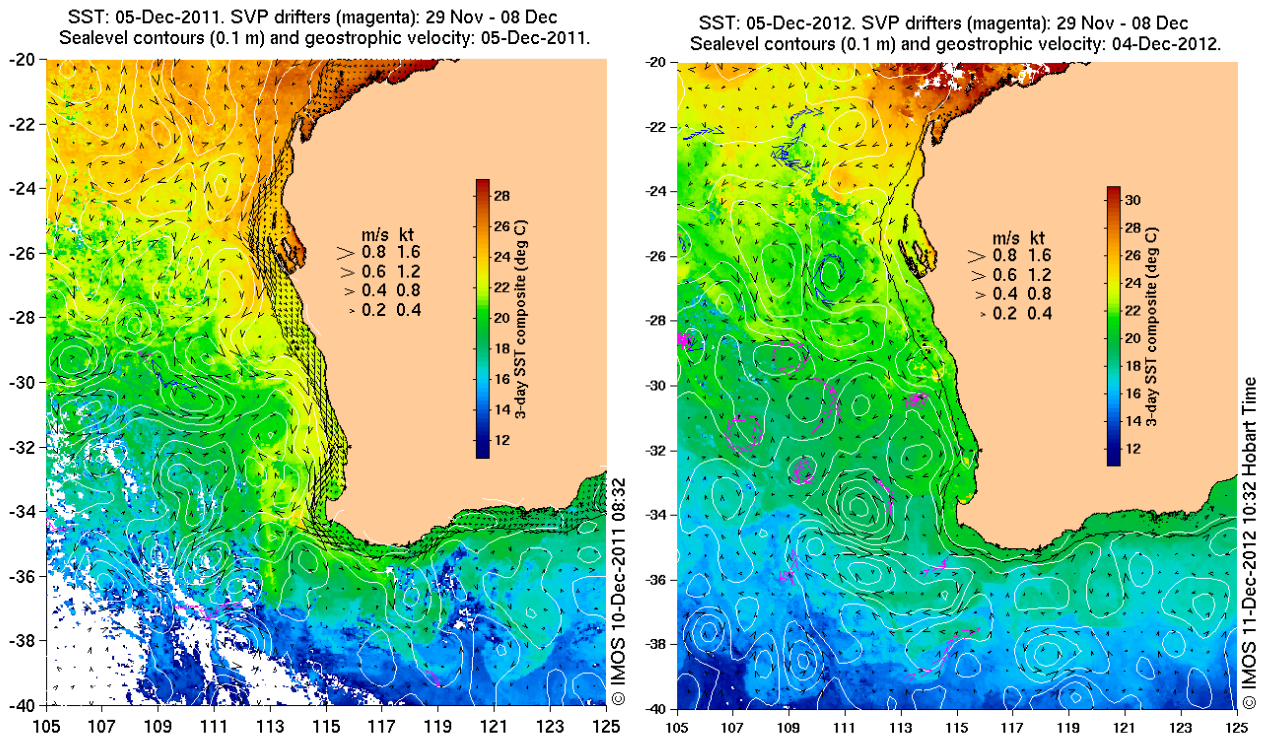


Figure 4: A comparison of the Leeuwin Current sea surface temperature and current speed and direction for the 5th December 2011 (left) and 5th December 2012 (right); please note that the temperature colour scale is not the same for each map. (Source: IMOS 2012; <http://www.oceancurrent.imos.org.au>).

Chlorophyll / Productivity:

Satellite images of the distribution of chlorophyll a give an indication of where food webs are enriched. These patches are often (but not always) associated with prey items (eg. bait fish) that are desirable to SBT.

The broad scale map (Figure 5) shows the area at and to the west of the Head of the Bight remains similar in intensity, but covers a larger area than last week.

The low productivity band shown in previous updates continues along the shelf break. A more detailed map of the GAB appears in Figure 6, and is commented on below.

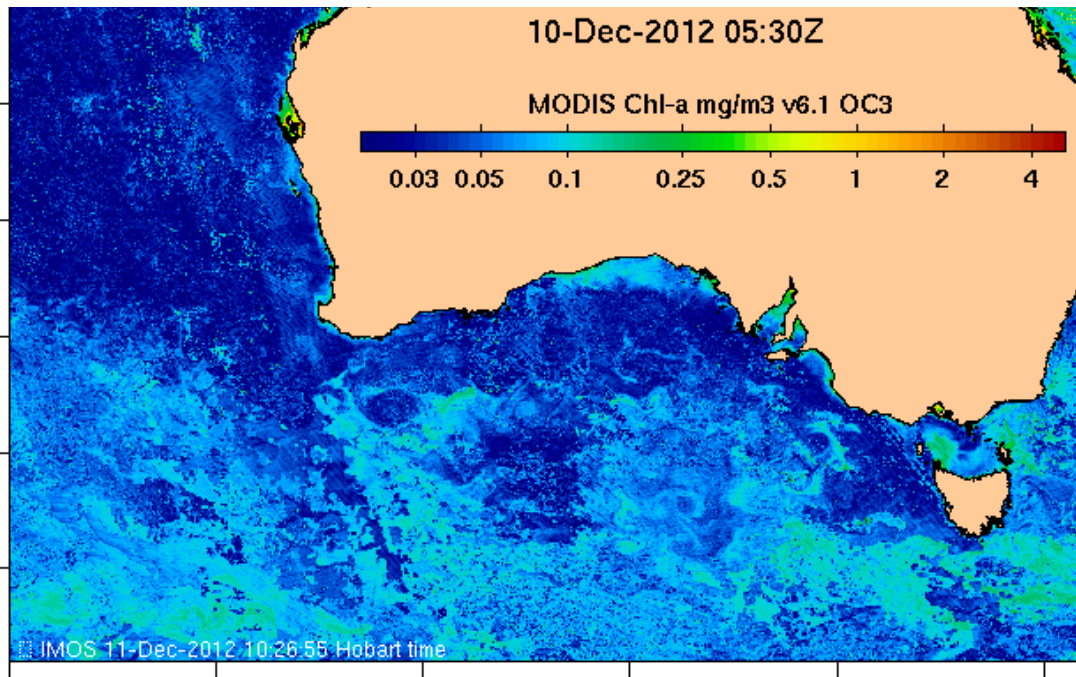


Figure 5: Image showing areas of productivity (chlorophyll a) on the 10th December 2012 (source: IMOS 2012; <http://www.oceancurrent.imos.org.au>)

The map of the GAB area (Figure 6) shows that the colour patch previously between 128° and 129° East is now generally spread through much of the northern and western Bight. The patch in the coastal areas of Streaky and Ceduna continues to spread beyond the coastal fringe. Colour continues to build up along the coastal fringe of lower Eyre Peninsula, particularly around the Coffin Bay Peninsula. Cloud cover continues to be an issue, obscuring images; this is the clearest image of the general GAB area of the past week but still has a patchy cloud throughout.

The edge of the shelf (shown as the light blue line) remains clear (dark blue).

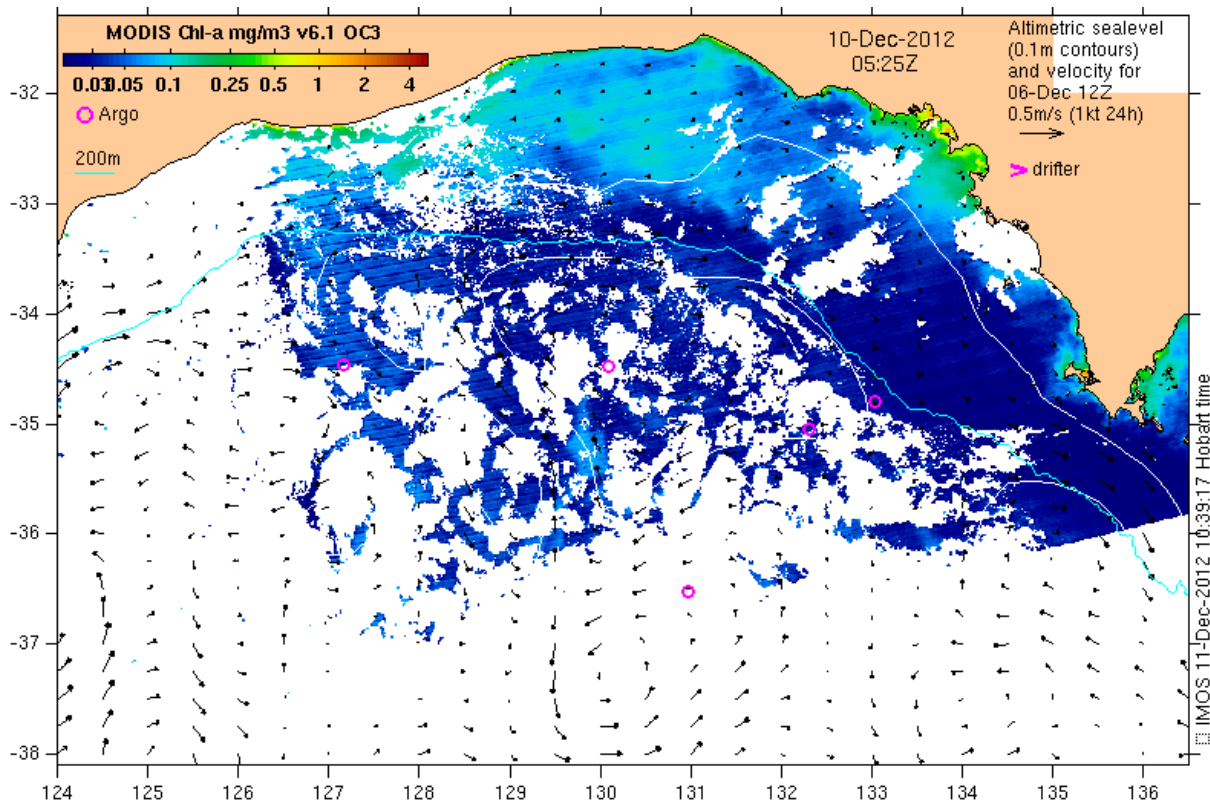


Figure 6: Areas of productivity within and below the GAB on the 1st December 2012 (source: <http://www.oceancurrent.imos.org.au>).

Global Sea Temperature and Climate Status:

These were tracked weekly coming into the fishing season, but now it is established that the prevailing status will remain as ENSO neutral for this SBT season. Therefore this section will now be reported on a monthly basis in line with latest updates issued by the Bureau of Meteorology.

Useful Websites:

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

<http://www.csiro.au>

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

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