

Climate and Oceanographic Summary for the Great Australian Bight No. 17

Kirsten Rough – 15th February 2013

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

Summary:

Sea Surface Temperature (SST) throughout the historic and current fishing areas remains generally between 19 to 22°C; still within the preferred temperature range of our size SBT.

Temperature this week in the central western GAB at 131°E 33°S has dropped by a degree to 20.6°C and temperature in the central east at 133°E 34°S remains at 20.9°C. Upwelling of cold water onto the shelf continues and is pushing along the coast further to the west. The warm water band along the shelf break continues below Kangaroo Island and extends as far as the SA - Victoria border.

The Leeuwin current continues to show a relatively 'normal' progression along the WA coastline. Actual SST out from Exmouth this week remains at 31.5°C, passing Cape Leeuwin is 22.8°C and passing Esperance is now 21.4°C.

Current directions at specific locations can be provided on request – call or email if anyone wants anything further on this. The current direction on the shelf below Eyre Peninsula is now travelling from the east to the west (opposite to last week!). Along the shelf break currents are tending generally to travel from the northwest towards the southeast – but there are areas of swirling eddies where the direction of the water flow is quite different.

CSIRO Aerial Survey flew 2 days over the past week. Conditions were cool on one the day in the western sector and SBT sightings were limited (185-tonne). The second flying day was favourable warm weather but low cloud meant that the 3 transect lines attempted were only partially flown; just over 1000-tonne was sighted in the traditional fishing area.

Moon Phase: the next full moon is on the 25th February.

Sea Surface Temperature and Ocean Currents:

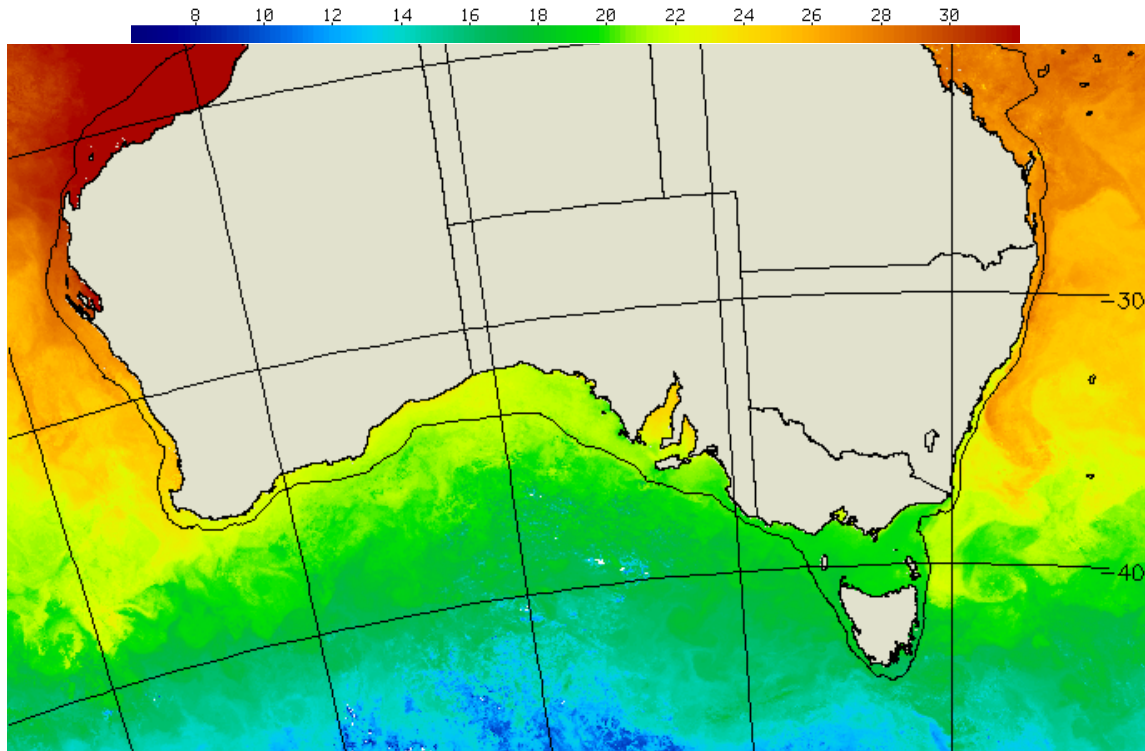
An update of the water temperature across southern Australia and through the fishing grounds to the 14th February 2013 can be seen in Figure 1 and Figure 2. The temperature through the GAB ranges from 19.5 to 21.7°C.

The movement and mixing of water bodies continues over this past week, with warm currents extending along the shelf break to the south of Kangaroo Island and across to the south east coast of SA. Upwelling continues along the west and southern coast of Eyre Peninsula; this cool water continues to hug the coast and extends westward to 130°E (Figure 1).

The SST at a number of specific sites averaged from 9th to 14th February were obtained from the CSIRO (2013):

130°E 32.5°S is 21.6°C ¹	131°E 32°S is 21.4°C	131°E 33°S is 20.6°C	132°E 33.5°S is 20.9°C ¹
133°E 34°S is 20.9°C	134°E 34.5°S is 20.9°C ¹	135°E 35°S is 20.6°C	135.5°E 35°S is 20.4°C ¹

¹ These co ordinates are Degree Decimal Minutes



Mean SST from 09/02/2013 to 14/02/2013

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Figure 1: Sea Surface Temperature around Australia for the 5 days to 14th February 2013 (source: CSIRO 2013 <http://www.marine.csiro.au>)

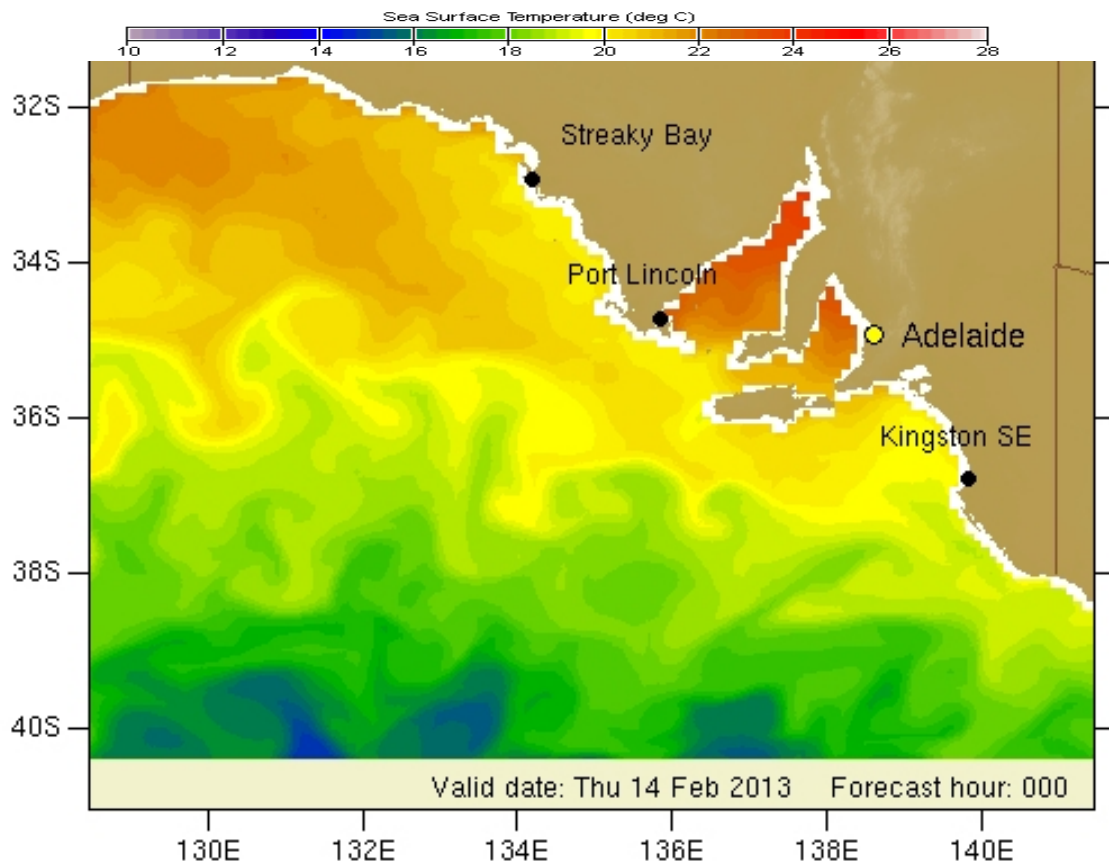


Figure 2: South Australian sea surface temperature and current direction from the Bureau of Meteorology website for the 3 days to the 14th February 2013 (source: Bureau of Meteorology 2013; <http://www.bom.gov.au>).

Leeuwin Current:

The status of sea surface temperature patterns off WA can be seen in Figure 1 above. The actual SST off the coast of North West Cape (Exmouth) remains at 31.5°C, out from Cape Inscription (Shark Bay) is 28.3°C, out from Cape Leeuwin (Augusta) is 22.8°C and out from Esperance is 21.4°C (CSIRO 2013).

GAB Currents:

A general plot of where the water currents are moving within the eastern GAB area can be seen in Figure 3; the position of the orange cursor is 34°42'S 134°38'E. The area covered by the image spans from just south of Venus Bay to Kangaroo Island. The currents below Eyre Peninsula on the continental shelf are pushing more from the east towards the west this week. At the shelf break there is a tendency for water to be flowing from the west towards the east. Currents along the west coast of Eyre Peninsula continue to move from the south to the north along the coastal fringe. Any surfers amongst you would be well aware of how cold the sea is along this coastal area.

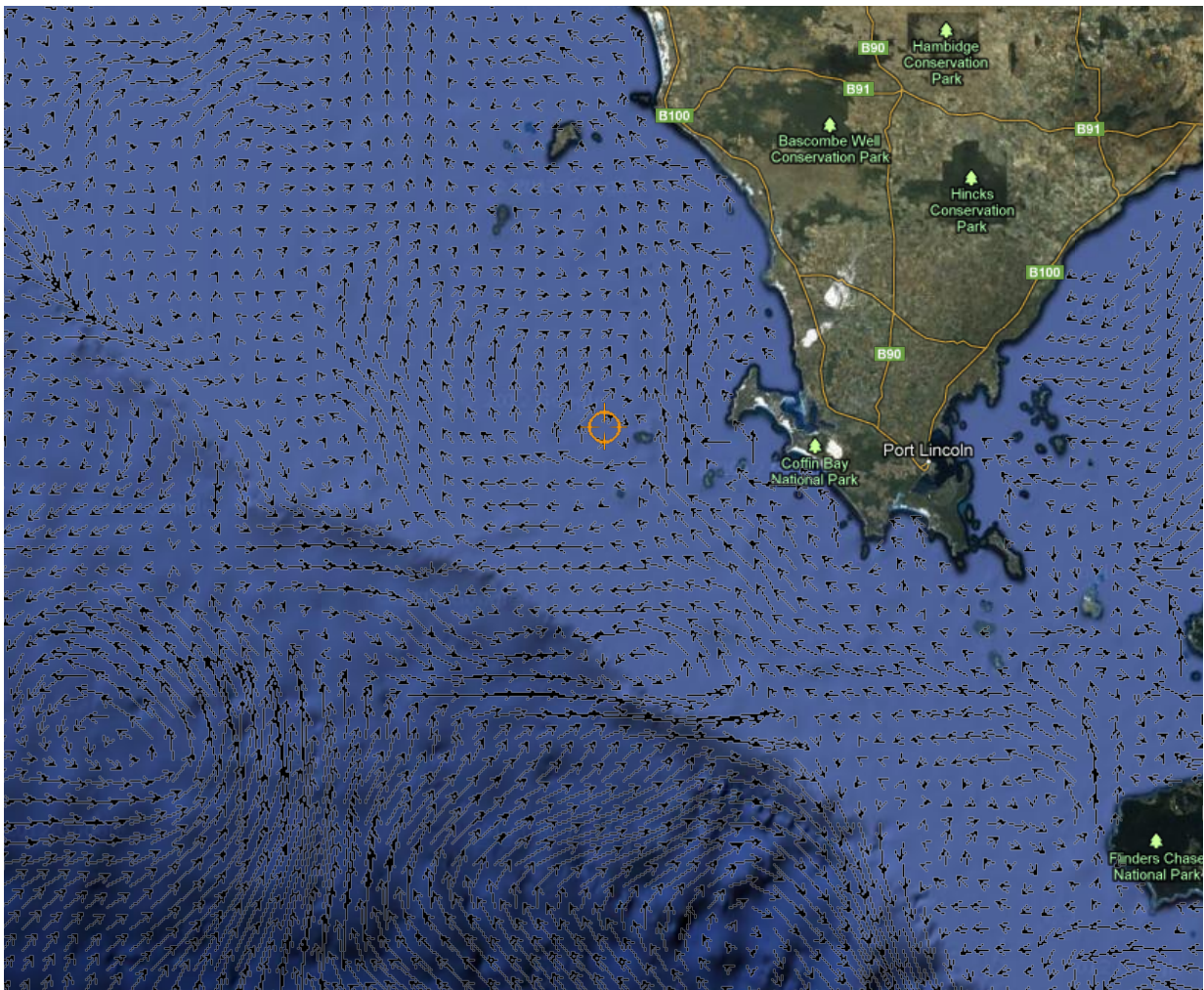


Figure 3: Direction of water movement within the eastern section of the Great Australian Bight, Venus Bay to Kangaroo Island, on the 15th February 2013 (source: <http://www.fishtrack.com>)

Chlorophyll / Productivity:

The amount of chlorophyll around southern Australia can be seen on the IMOS image 14th February (Figure 4). Cloud cover is an issue again for finer scale images of the GAB area the clearest for the past week was on the IMOS site on the 13th February (Figure 5). Both show chlorophyll concentrated in the coastal regions and denser patches within Spencers Gulf. The entire shelf of the GAB has some degree of colour with isolated pockets of clearer areas west of lower Eyre Peninsula and below EP.

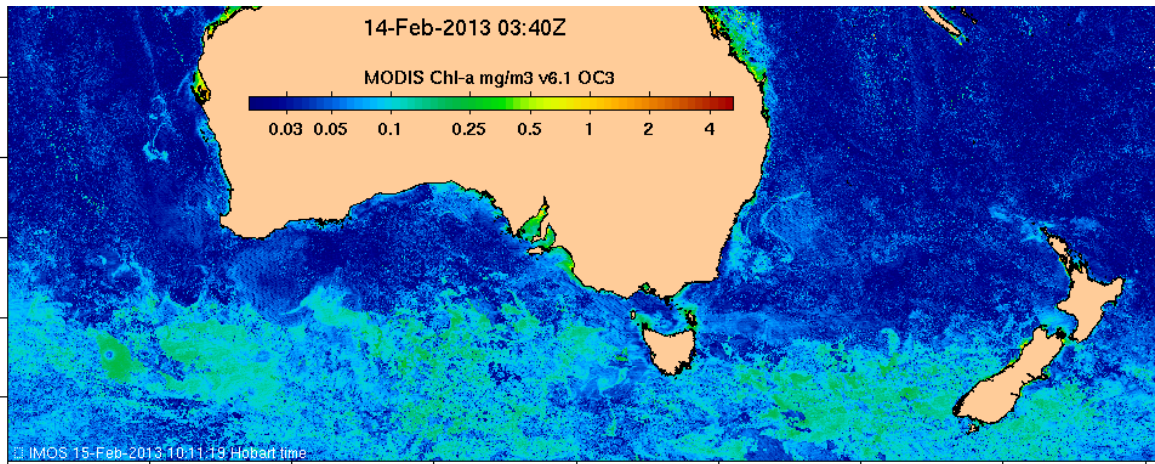


Figure 4: Productivity across southern Australia on the 14th February 2013 (IMOS 2013).

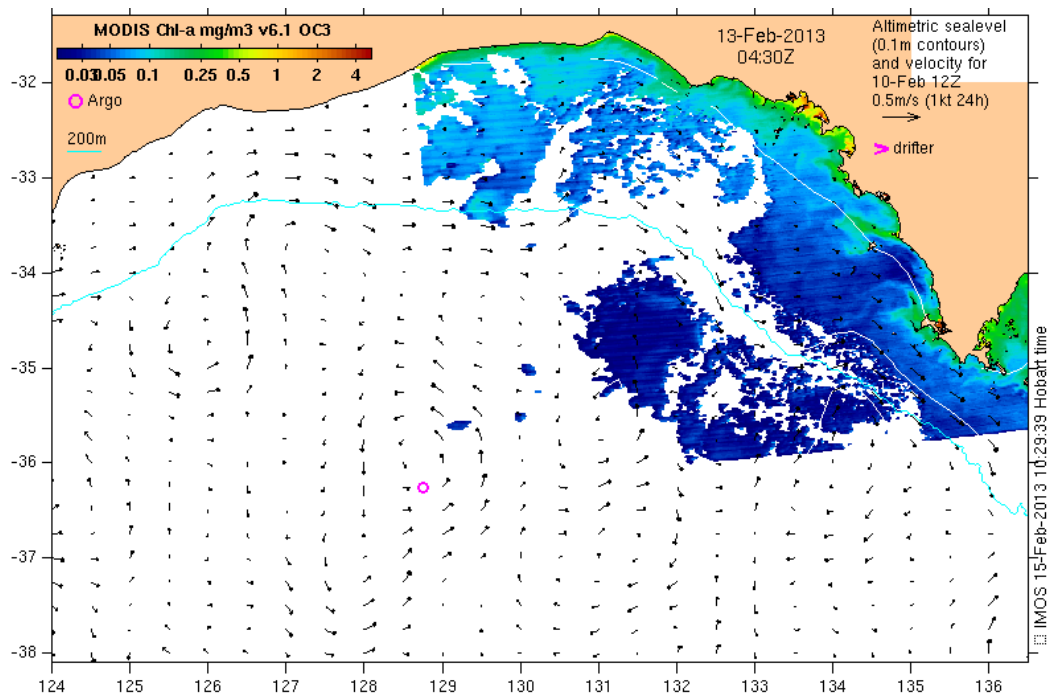


Figure 5: Areas of productivity within the GAB on the 13th February 2013 (IMOS 2013).

CSIRO Aerial Survey:

Summary of SBT sightings through this past week are shown by longitude in the table below. Note that the survey lines may not have been flown in full due to weather restrictions – this is only raw data and not calibrated per area covered on any particular day AND includes everything regardless of size.

Three full transect lines in the west of the survey were flown on the 8th February; weather conditions were cool. The inshore 1/3 of transects 9, 10 and 11 in the central to eastern section of the GAB were flown on the 14th February in favourable warm weather conditions, but low cloud meant spotters were not able to cover the offshore sections of each of these lines.

DATE	129° to 130°	130° to 131°	131° to 132°	132° to 133°	133° to 134°	134° to 135°
8 th Feb	0 tonnes	185 tonnes				
14 th Feb			160 tonnes	845 tonnes	0 tonnes	

Climate / Ocean Trends:

The latest plot showing global sea surface temperature anomalies (areas of sea temperature higher or lower than the long-term average) is shown Figure 6. Many areas of the Indian Ocean, and especially along the northwest shelf of WA and throughout the GAB remains warmer than the 30-year average.

The Pacific Ocean over the past week is now showing a pattern similar to El Niño, but this will need to persist for a prolonged period of time (5-months) before the Bureau of Meteorology formally declares that particular climate phase. Through the past month this index has been slightly on the positive (La Niña) side of neutral, it is now firmly in the negative.

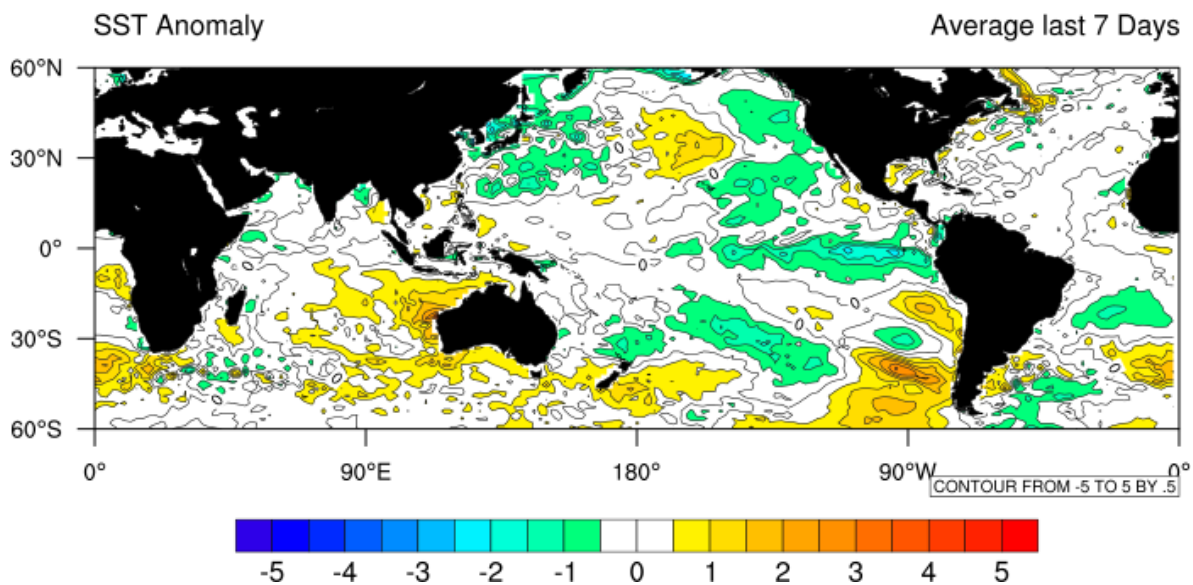


Figure 6: Latest plot showing global sea surface temperature anomalies over the past 7-days (source: Bureau of Meteorology 2013, <http://www.bom.gov.au>)

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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