

Climate and Oceanographic Summary, Great Australian Bight 2014 - 17

Kirsten Rough – 27th January 2014

Summary:

Strong upwelling has occurred in the South East of SA over the past few days. This has reduced sea temperatures by 7°C at longitude 139°E (this location is now 15.8°C, last week it was 23°C).

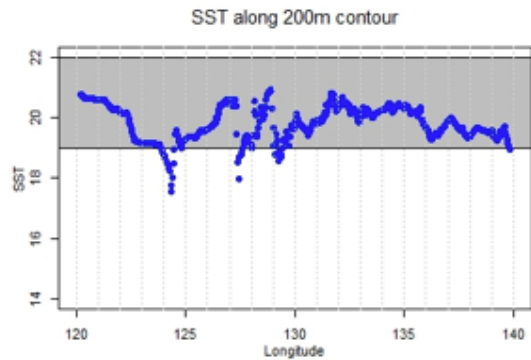
This cooler water is progressively reducing water temperature westwards of the upwelling site following the coast line so that the warmest areas (around 20-21°C) are currently in the western GAB (130°E) and extending as a thin band along the shelf break to 134°E. Areas of 19+°C water remain south of Eyre Peninsula and Kangaroo Island.

Based on archival tag data, water is suitable for SBT right through the GAB. The optimum areas of the GAB and the South East extend south of the shelf break. SST along the shelf-break (graph below) show several thermal fronts suitable for “waves of SBT” moving through the GAB over this past week.

Actual Sea Surface Temperature (SST) this past week:

- Western GAB at 130°E 33°S is 20.3°C
- Central GAB at 133°E 34°S is 19.8°C
- Eastern GAB at 135°E 35°S is 18.8°C
- Southwest KI at 136°30'E 36°30'S is 18.7°C
- Southeast at 138°E 37S is 17.7°C

The graph (right) shows SST along the shelf break 21st January



The Leeuwin Current (LC) continues to have very little influence on the GAB fishing area. This season remains under the influence of the Southern Ocean.

The next full moon is on the 15th of February.

CSIRO Aerial Survey SBT sightings from 1st January 2014 to date (27th Jan) tonnage per longitude:

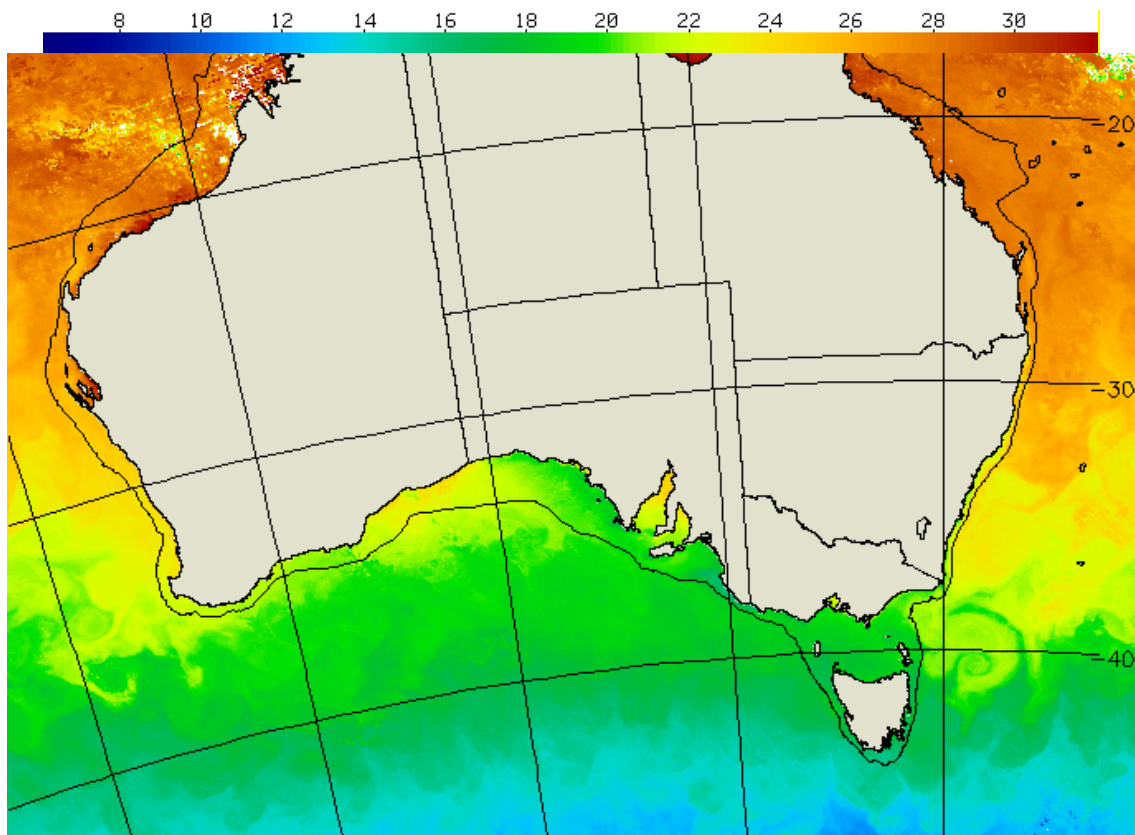
128°	129°	130°	131°	132°	133°	134°
51 tonnes	415 tonnes	250 tonnes	1485 tonnes	910 tonnes	720 tonnes	3262 tonnes

GAB Sea Surface Temperature (SST):

There has been a strong upwelling over the past few days and water temperatures, particularly in the east have dropped considerably (Figure 1 and Figure 2). In the area east of Kangaroo Island temperatures have fallen by up to 7°C (last week 23, now 15.8°C). Water suitable for SBT remains in a band along the shelf break in the eastern Bight, as well as southwest and south of Kangaroo Island. The eastern Bight now ranges from 18.7 to 19.8°C, generally warmer along the shelf break and cooler inshore. Temperatures in the western Bight are slightly cooler than last week but are still in the range of 20-21°C. Western, central and eastern GAB sea temperatures are suitable for SBT.

Table 1: Sea Surface Temperatures at specific locations along the shelf and shelf break of the Great Australian Bight on the 26th January 2014, co-ordinates as degrees, minutes, seconds (CSIRO 2014).

130°E 33°S is 20.3°C	131°E 32°S is 20°C	131°E 33°S is 20.9°C	132°E 33°30'S is 20.3°C
133°E 34°S is 19.8°C	134°E 34°30'S is 19.8°C	135°E 35°S is 18.8°C	136°E 35°30'S is 18.7°C
136°30'E 36°30'S is 18.7°C	137°E 36°30'S is 19.2°C	138°E 37S is 17.7°C	139°E 37S is 15.8°C



Mean SST from 21/01/2014 to 26/01/2014
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Figure 1: Sea Surface Temperature across southern Australia for the 5-days to the 26th January 2014 (source: CSIRO 2014).

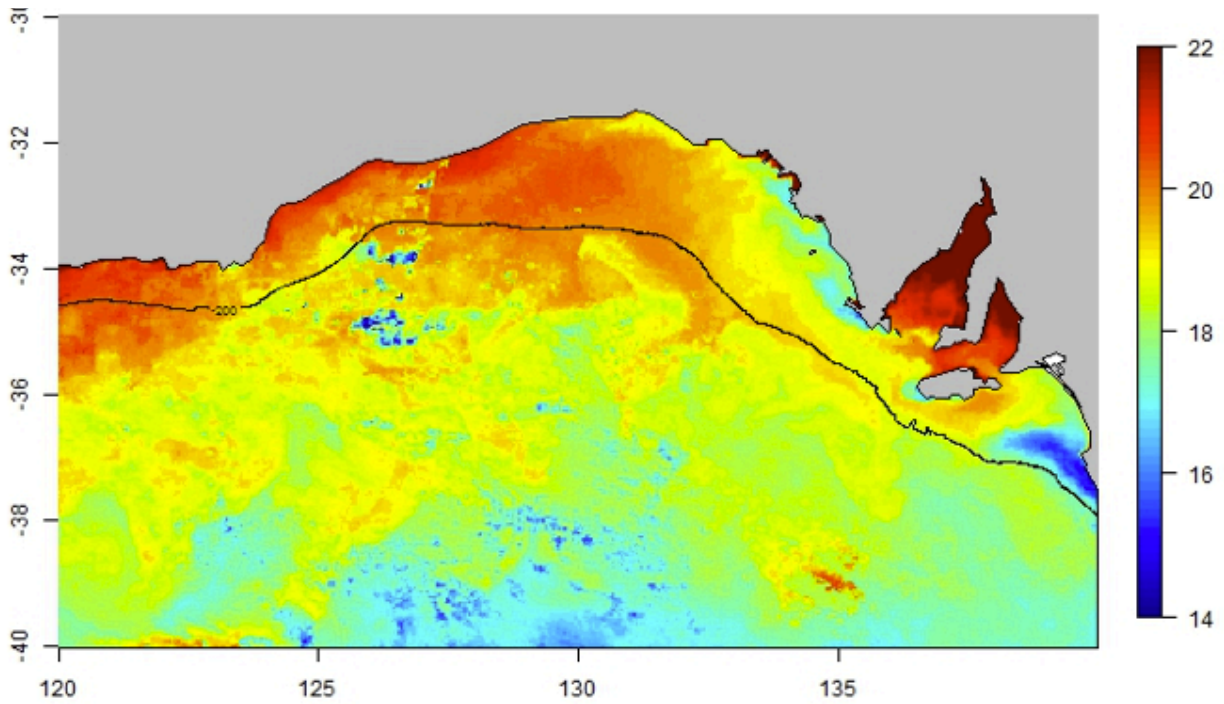


Figure 2: Sea Surface Temperature from the GAB Habitat Forecasting project taken on the 24th January 2014 (source: CSIRO 2014).

Leeuwin Current Temperature:

Sea surface temperatures and ocean currents around the Western Australian coastline for the 21st of January 2013 and 2014 are shown below (Figure 3). The actual SST this week: off North West Cape (Exmouth) is 26.2°C, out from Cape Inscription (Shark Bay) is 25.7°C, out from Cape Leeuwin is 21.6°C and out from Esperence is 20.1°C (CSIRO 2014). The warm water from this current continues to progress slowly along the coastline.

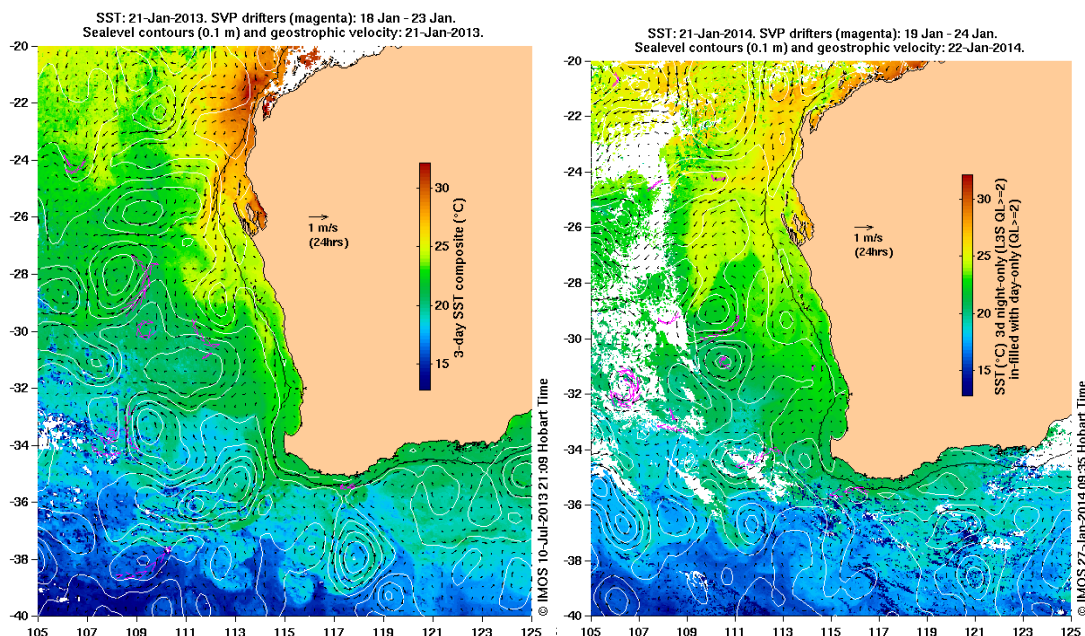


Figure 3: A comparison of the Leeuwin Current sea surface temperature and current speed and direction for the 21st January 2013 (left), and 2014 (right) (Source: IMOS 2014).

SA Water Currents:

A plot of where the water currents are moving below Eyre Peninsula is shown in Figure 4, the blue arrows are real time surface currents measured from radar mounted on Cape Catastrophe. Please note the maps in previous issues were based on models of water movement not real measurements, but they are able to cover a wider area than the radar below.

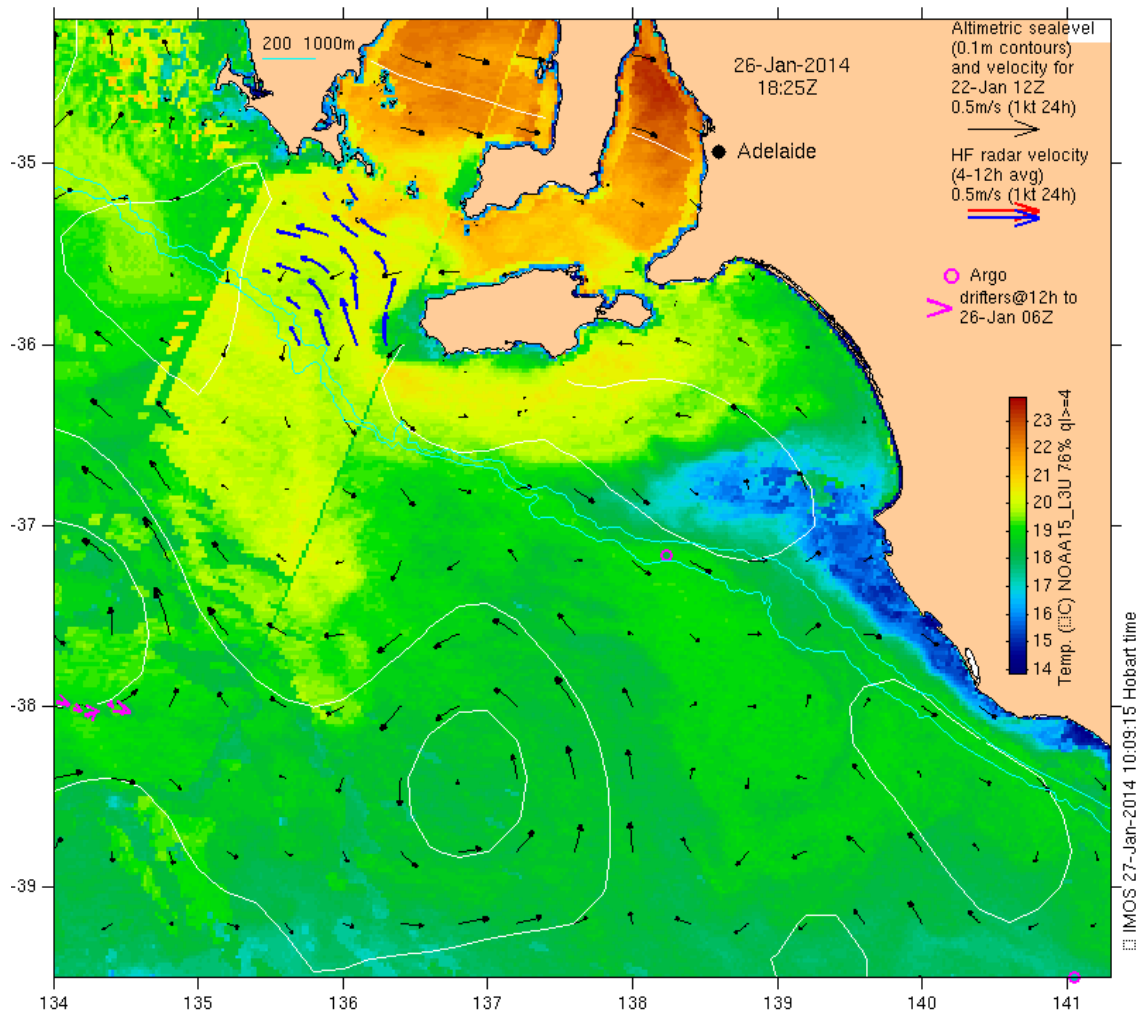


Figure 4: Water currents on the 26th January 2014, the arrows in blue below Eyre Peninsula are surface currents recorded by radar; the colour of the background is Sea Surface Temperature (IMOS 2014)

Chlorophyll and Productivity:

These plots were taking too long to download, so will email as a picture and separate item when they come through.

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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