

Oceanographic Summary, Great Australian Bight 2016 - 17

Kirsten Rough – 20th February 2016

Please find following the latest update for recent and expected oceanic conditions for the 2016 fishing and aerial survey season.

Summary:

The sea temperatures of the GAB area continue to warm over a broad area; and fishing areas to date continue to have conditions highly suitable for SBT.

Along the shelf break (200m depth contour) conditions are highly suitable for SBT across the central GAB to longitude 138°30'E. Inshore (on the shelf) conditions are highly suitable around Kangaroo Island, and areas south of the Cabbage Patch and Rocky Island.

Upwelling continues as a particular feature, influencing sea surface temperatures and chlorophyll concentrations along the South East “Bonney Coast”; the coastal fringe of lower and western Eyre Peninsula; as well as some of the important aggregating areas of SBT (notably Cannan Reef, and to a lesser extent Cabbage Patch and Rocky Island).

The environmental criteria have been suitable for the CSIRO Aerial Survey to fly on 9 days so far this season. This is less than most of the previous 6 surveys, which to this point in time range between 9 days in 2009 to 16 days in 2012. The general distribution of sightings is shown below.

CSIRO Aerial Survey SBT sightings from 1st January 2016 to date (20th Feb) tonnage per longitude:

128°	129°	130°	131°	132°	133°	134°
0 tonnes	95 tonnes	430 tonnes	560 tonnes	3000 tonnes	4750 tonnes	2360 tonnes

GAB Sea Surface Temperature (SST):

The Sea Surface Temperature situation across southern Australia over the previous 3-days is shown in Figure 1, and in the central and eastern GAB over the past 2-weeks in Figure 2. The graphs of water temperature along the shelf break are showing suitable conditions for SBT along the 200m depth contour to longitude 138°30'E. Inshore the conditions are highly suitable to the south and southeast of Kangaroo Island, south of Cabbage Patch and Rocky Island (Table 1).

The upwelling continues to be a significant feature of the conditions expressed this season, notably shown in Figure 3. Water temperatures in the cooler areas of the South East are 14 to 16°C. To the south of the major upwelling zone in the South East, there are now areas where surface conditions are within the preferred range for SBT (see habitat section, Figure 4). Sea surface temperatures remain cooler along the coastal fringe of western and lower Eyre Peninsula. This week the sea surface temperature is quite cool around Cannan Reef, and cooler at Rocky Island and the Cabbage Patch area (Figure 3 and Table 1).

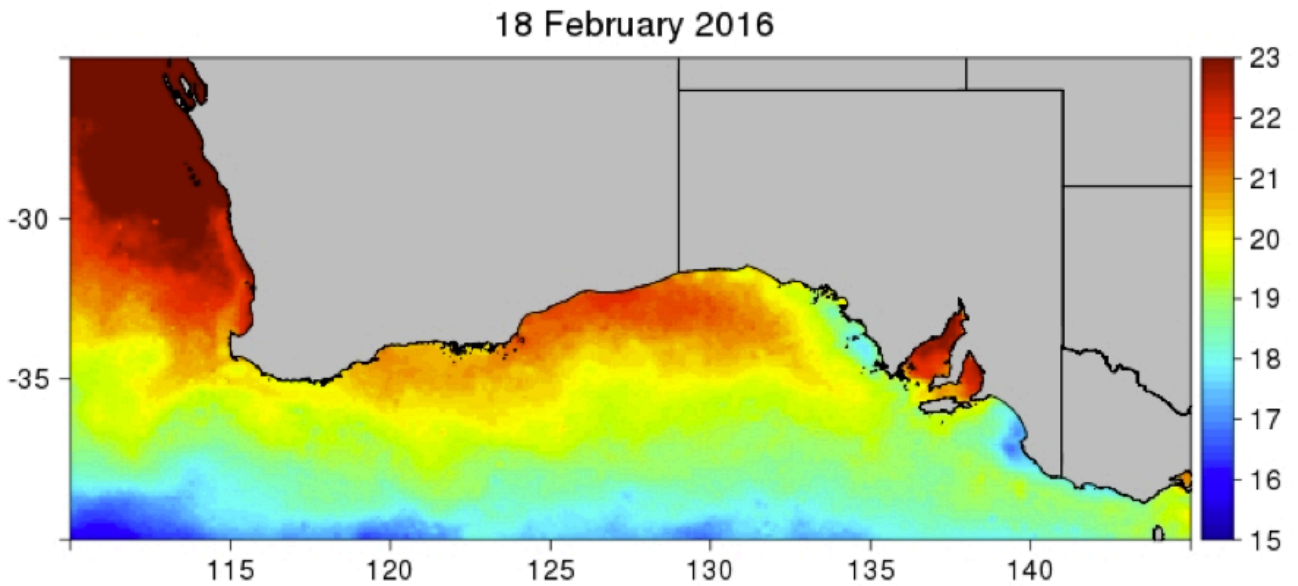


Figure 1: Sea Surface Temperature across southern Australia for the 3-day period around the 18th February 2016 (CSIRO 2016).

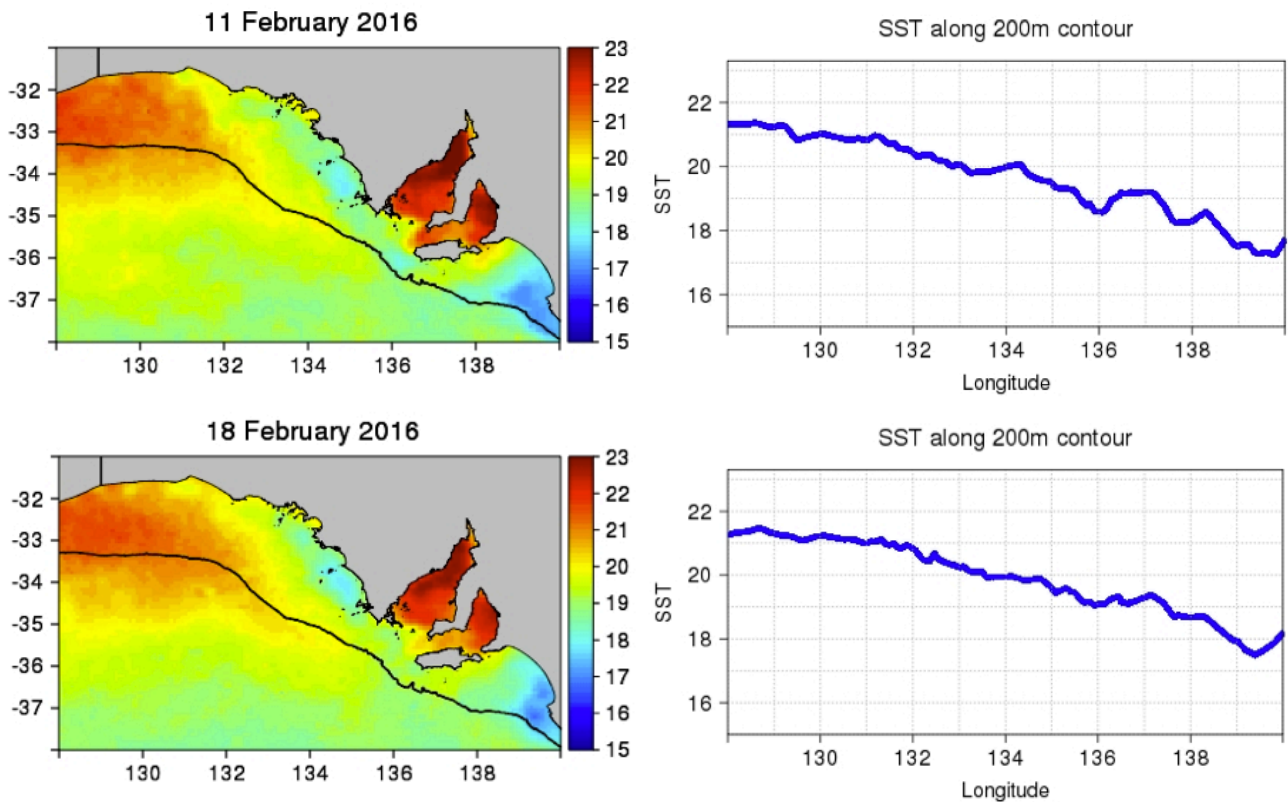


Figure 2: Snapshots of sea surface temperatures across the Eastern GAB over the past 2 weeks, satellite image on left and graph of temperature along the shelf break (black line) on the right (CSIRO 2016).

Table 1: Sea Surface Temperature for 9th February 2016, at some important historic and recent catching areas.

131°00'E 33°05'S = 21.1°C	132°00'E 33°23'S = 20.8°C
133°00'E 34°05'S = 20.0°C	134°00'E 34°15'S = 18.4°C
Yatala Reef 19.4°C	Cannan Reef 16.6°C
SW Rocky Island 18.8°C (south of this is 19.5°C)	Cabbage Patch area 18.3°C
SW Cape de Cudiac – too much cloud cover	Young Rocks area – too much cloud cover
SE Pelorus Rocks 18.9°C	Sanders Banks area 18.9°C

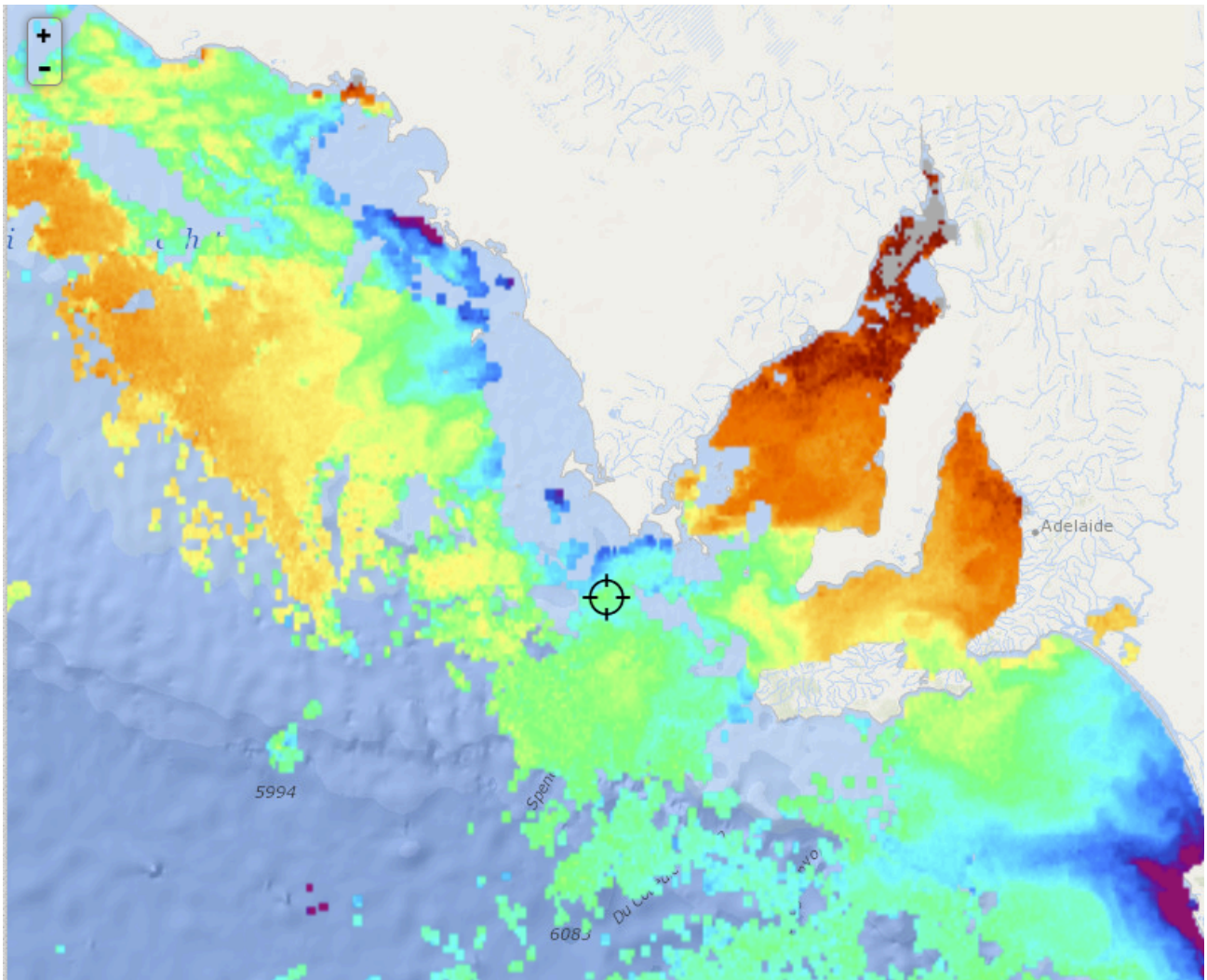


Figure 3: Most recent clear image (20th Feb 2016) of Sea Surface Temperature covering an area from the Head of the Bight to the South East of SA (FishTrack 2016).

SBT Habitat:

From a habitat perspective, how the situation has looked over the past 2-weeks is shown in Figure 4. The warmer area to the south of the South East upwelling zone now has sea temperatures and chlorophyll within the range preferred by SBT, this is shown as the green patches in the lower image of figure 4. The current fishing locations are forecast to remain suitable to at least early March.

Figure 5 shows a comparison of the situation for a similar point in time through the 2015-fishing season.

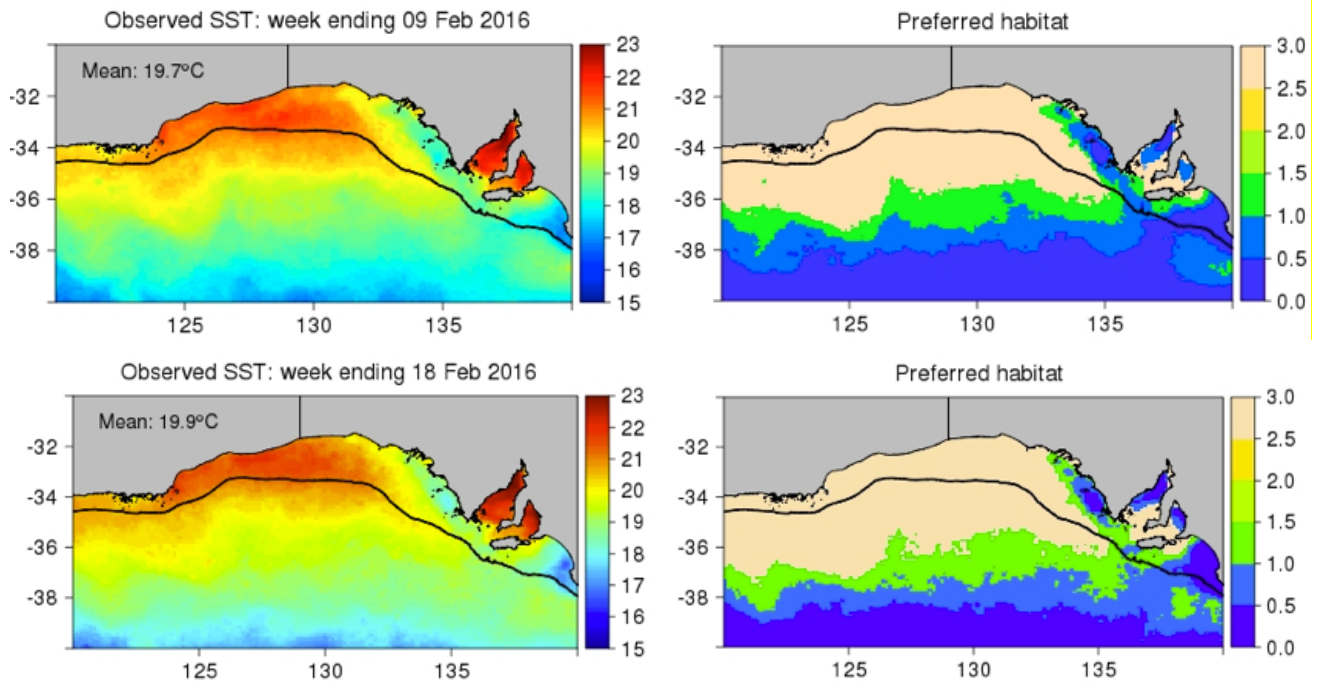


Figure 4: SST and preferred habitat distribution over the previous 2 weeks this season (CSIRO 2016).

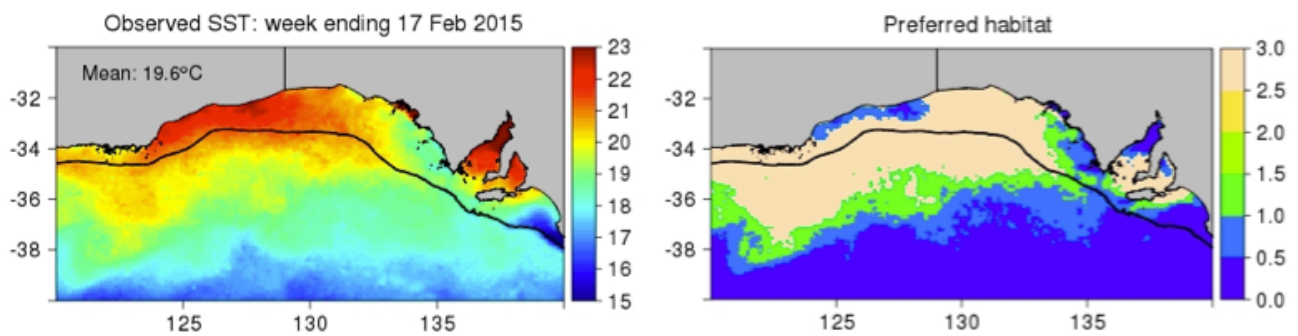


Figure 5: SST and preferred habitat distribution for the week ending on the 17th February 2015 (CSIRO 2015).

Chlorophyll / Productivity:

Cloud cover has obscured large areas of most images over the past week. The best image of chlorophyll distribution around Kangaroo Island and across the greater GAB area was obtained on the 20th February (Figure 6). Highest levels continue to be associated with areas influenced by upwelling. Ideal areas for SBT are in the regions with light blue and the aqua colour.

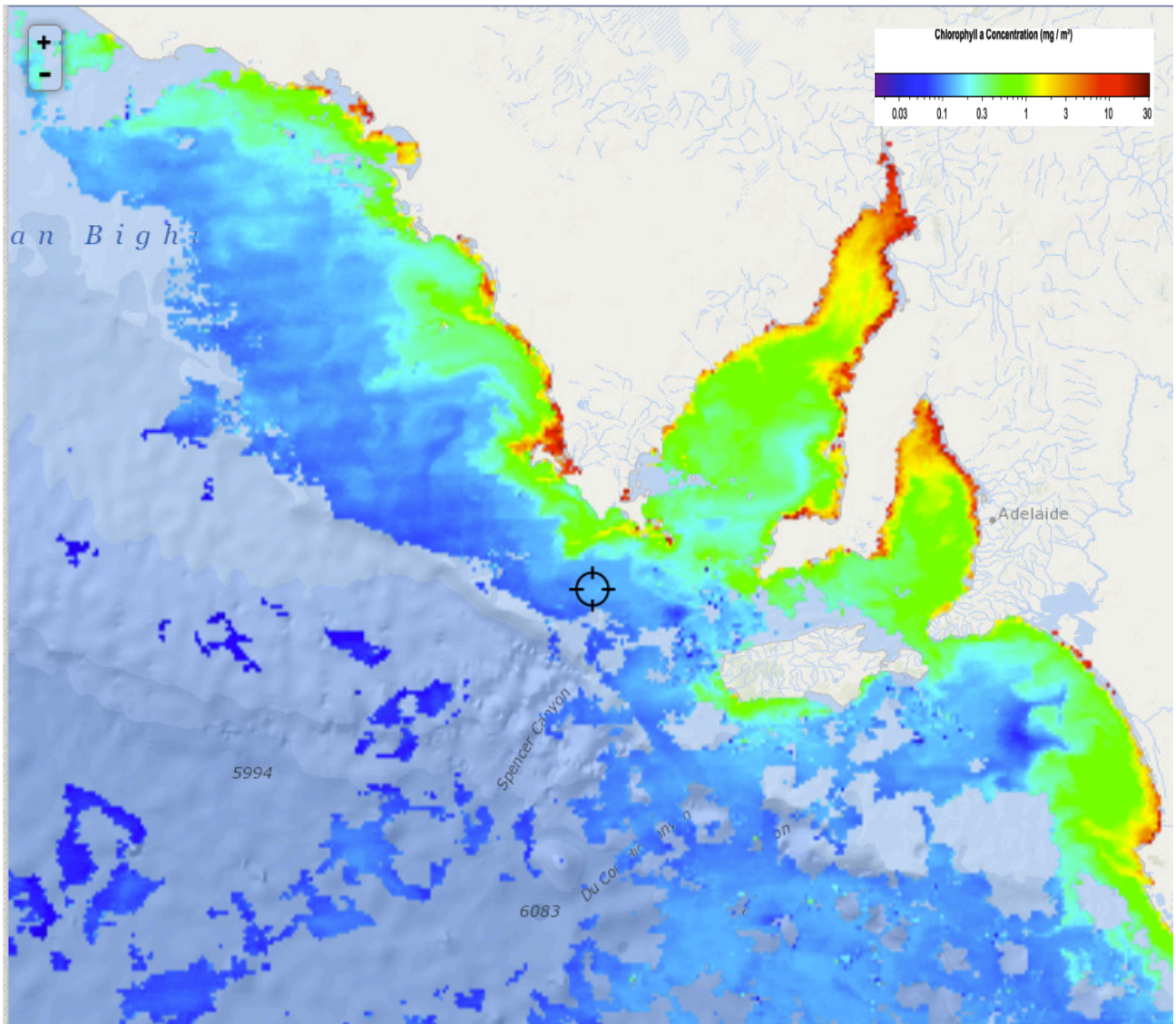


Figure 6: Distribution of chlorophyll concentrations from the Head of the Bight to the South East of SA on 20th February 2016 (FishTrack 2016)

Useful Websites:

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

<http://www.csiro.au>

<http://www.fishtrack.com>

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

<http://www.cmar.csiro.au/gab-forecasts/index.html>

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