

# Climate and Oceanographic Summary, Great Australian Bight 2016 - 4

Kirsten Rough – 22<sup>nd</sup> November 2015

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

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## Summary:

The sea temperatures of the GAB area continue to warm slowly, fluctuating under the influence of local weather patterns (hot days/cold days etc).

Cold water from the upwelling system continues to be visible at the sea surface.

Productivity continues to be enhanced by upwelling especially along the shelf break of the South East and around southern and western Kangaroo Island.

Forecasts on SBT habitat distribution continue to suggest that the area below Eyre Peninsula is likely to be a suitable fishing area through January.

The Petroleum Industry is having an open day for the public in Port Lincoln on the 2<sup>nd</sup> December between 10:30am to 1:30pm at the Lincoln Marine Science Centre.

## GAB Sea Surface Temperature (SST):

The situation averaged for the month of November for the previous 5 years can be seen in Figure 1, also included in this is the situation of the past week for November 2015 (once the entire month is averaged the average temperature will be lower than what is shown for the week).

The situation for sea surface temperatures across the greater GAB area for the 3-days around the 21<sup>st</sup> November 2015 can be seen in **Error! Reference source not found.** And a snapshot of the conditions across the fishing areas historically and through recent years is shown in **Error! Reference source not found.**

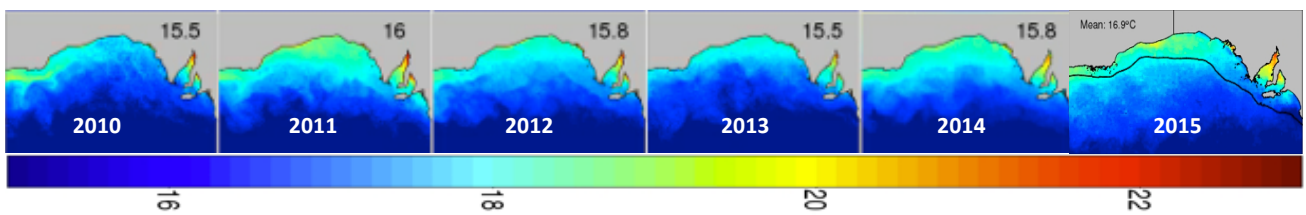
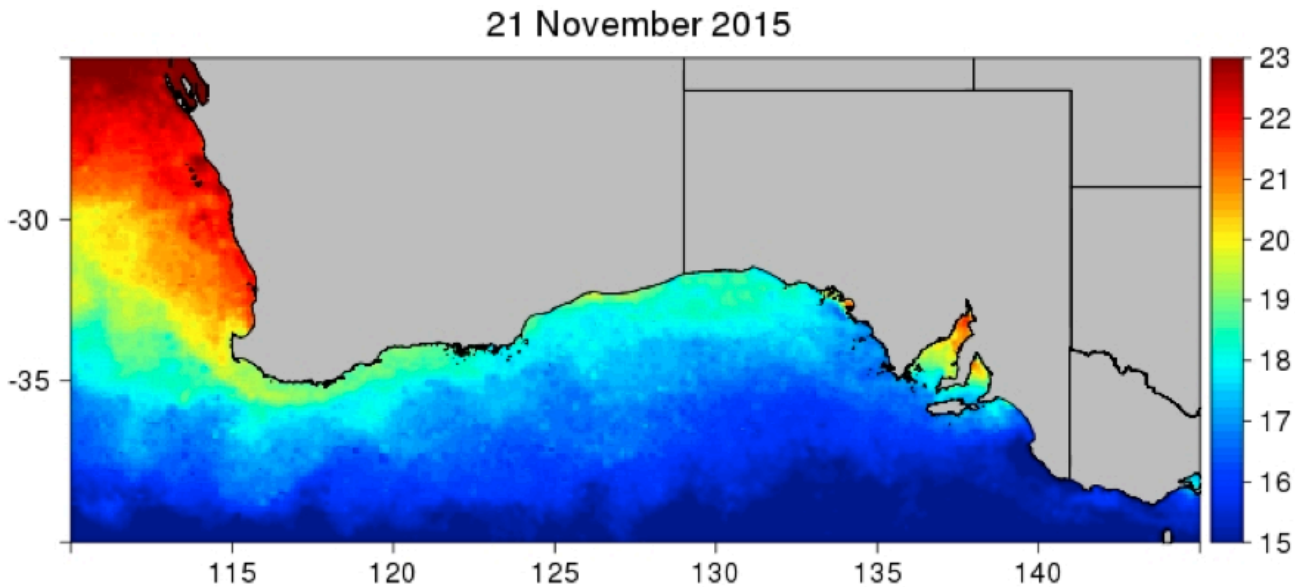
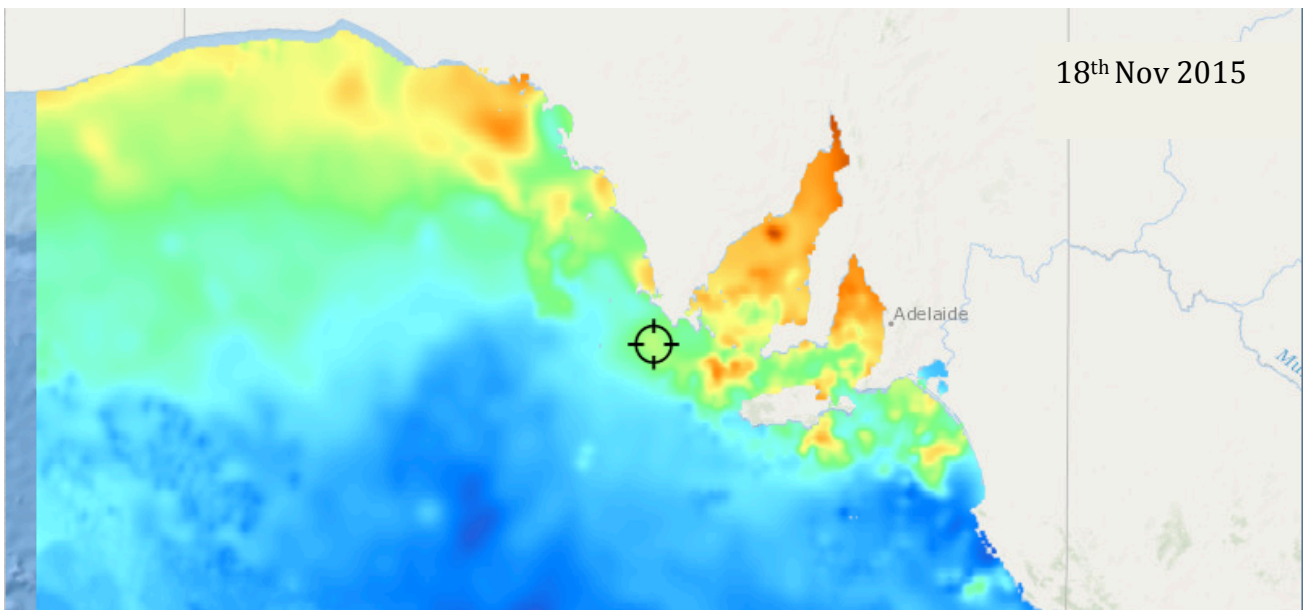


Figure 1: GAB sea surface temperatures through November for the previous 6 years; in these images aqua can contain early entry SBT, and yellow is the ideal temperature (CSIRO 2015). Note the temperature in 2015 is only the past week NOT the average for the entire month of November as is the case for the other years.



**Figure 2:** Sea surface temperatures across the broader area of the GAB and southwest WA on the 21<sup>st</sup> November 2015 (CSIRO 2015).



**Figure 3:** A single processed satellite image taken on 18<sup>th</sup> November showing SST; there are a number of warmer patches that are suitable for SBT. The inshore area to the west of Streaky Bay is probably associated with the recent sightings of SBT out from Fowlers Bay this week. Cold water from upwelling is still an obvious feature of the southeast of SA (FishTrack 2015).

### **Forecast SST and SBT Habitat:**

The longer-term forecasts of conditions in the GAB can be seen in Figure 4. In the habitat forecast images (on the right) the areas at or above 1 (green to skin colour) are highly suitable for SBT. The longer-term forecasts have changed slightly from those issued through early November. The inshore areas are now predicted to be a little warmer, which translates to a larger area being suitable for SBT through December; along the shelf break this is to around longitude 133°E, but extends further eastwards through inshore areas. It continues to look like the larger pulse of warm water will occur through January, when sea temperature conditions should be suitable to around longitude 136°E along the shelf break, and again likely to extend further eastwards for inshore areas to the Young Rocks area.

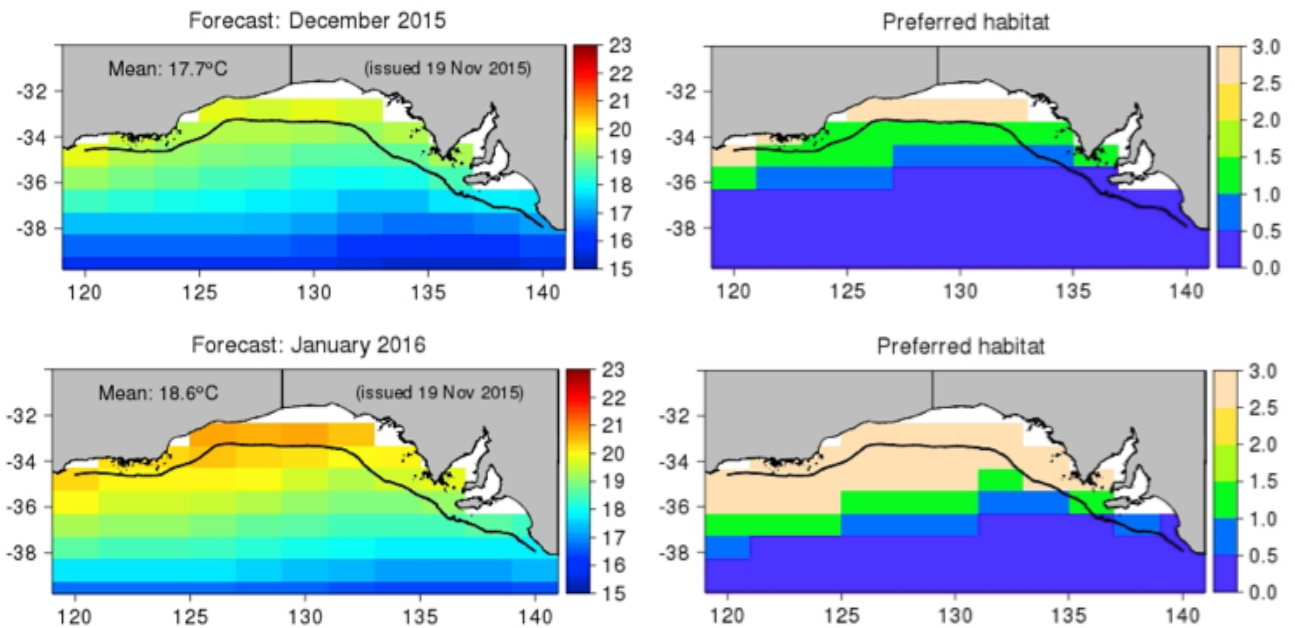


Figure 4: SBT habitat forecasts issued on the 19<sup>th</sup> November for likely conditions through December and January (CSIRO 2015).

Global Sea Surface Temperature anomalies over the past month are shown in Figure 5. The El Niño situation is clearly shown by the very large patch of warm water on the eastern side of the Pacific Ocean. Most relevant to us is the mass of warmer water to the southwest of Western Australia. This is being picked up by the SBT habitat-forecasting model and is likely to be part of the influence of the broad scale warming predicted through January.

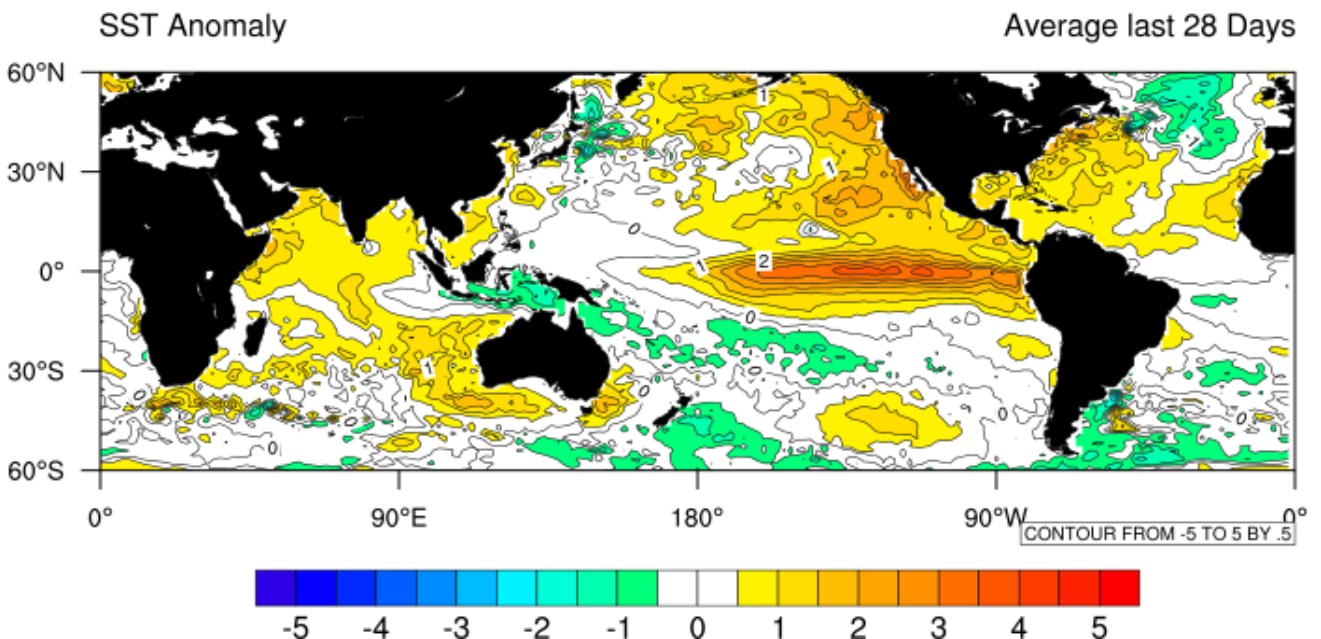


Figure 5: Global Sea Surface Temperature anomalies over the past month (Bureau of Meteorology 2015).

**Chlorophyll / Productivity:**

The clearest recent satellite image is from the 20<sup>th</sup> November 2015, and it continues to show higher chlorophyll (algae) associated with the cold water from the upwelling (Figure 6). There are also large areas of clear water on the shelf and along the shelf edge to the southwest of Lower Eyre Peninsula. Indicating a wide range of habitats are available across the GAB area.

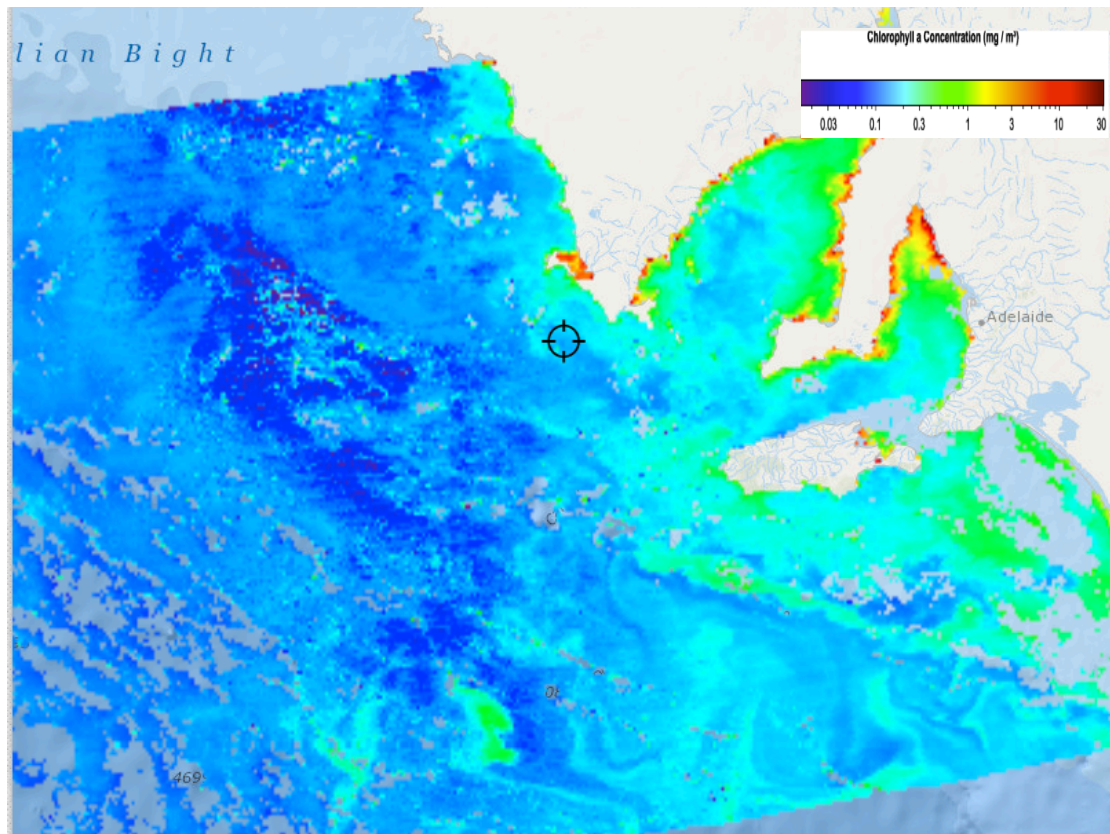


Figure 6: Processed satellite image of chlorophyll taken on the 20<sup>th</sup> November (FishTrack 2015).

## Petroleum Industry Update:

### DRILLING:

Over this past week NOPSEMA (the regulatory authority for the offshore petroleum industry) rejected the first Environmental Plan for exploratory drilling in the GAB that was submitted by BP. There were aspects of that Environmental Plan that could be improved to reduce the risks to the fishing industry. BP will likely update the plan and resubmit it to NOPSEMA.

### EXPLORATION / SEISMIC:

The area to the southwest of Eyre Peninsula has again been nominated to encourage applications for seismic and exploratory activity (Figure 7). This area was first opened for bidding in February 2015; and in the current listing, bids close in April 2016.



Figure 7: Petroleum areas nominated for seismic exploration.

### INFORMATION SESSION FOR PUBLIC:

An open day will be held in Port Lincoln from **10:30am – 1:30pm** on the **2<sup>nd</sup> December** at the **Lincoln Marine Science Centre**. Representatives from the Commonwealth and State Government regulatory agencies will be available to answer questions on Resource Development, Environmental Regulation, Oil Pollution Plans, and Government Response Capability etc.