

**REPORT TO REGIONAL WATER SUPPLY COMMISSION  
MEETING OF WEDNESDAY, 18 JULY 2007**

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SUBJECT                    WATER QUALITY TRENDS IN SOOKE RESERVOIR IN JUNE 2007

SUMMARY

The water quality tests conducted for Sooke Reservoir during June 2007 continued to show good quality water. A minor algal bloom of *Dinobryon* occurred but was insufficient to negatively impact the quality of the drinking water.

PURPOSE

This report provides information on the water quality conditions observed in Sooke Reservoir during the month of June 2007 and compares these data with those from previous years and long-term averages.

REPORT

**Physical Parameters**

*Water Levels.* During the month of June, Sooke Reservoir continued to decline (**Figure 1**). At month end, the water level in Sooke Reservoir was 185.2 metres, a drop of 0.82 metres over the month.

*Water Temperature.* During June, the weekly average temperature of the water entering the Japan Gulch Plant was slightly below the long term average for most of the month (**Figure 2**). By month end, the weekly temperature of the water entering the Japan Gulch Plant was 14.1°C, an increase of 2.7°C over the month.

**Water Clarity**

*Turbidity.* During June, the turbidity (cloudiness) of the surface water in Sooke Reservoir was slightly above the long term average in both the south basin and the north basin (**Figure 3**). Nevertheless, the water entering the treatment plant continued to be well below the turbidity limit listed for drinking water in the *Guidelines for Canadian Drinking Water Quality*. Similar to last month, at month end, the turbidity levels were substantively below that observed in 2006.

*Water Transparency.* In June, the transparency of the water at the Intake Tower (as measured by observing a black and white disk under the water) were slightly better than that observed in May (**Figure 4**). The water transparency remained about 20% to 25% higher than the long term average throughout the month of June.

**Bacteria**

The total coliform bacteria concentration in the water entering the Japan Gulch Treatment Plant from Sooke Reservoir continued to remain low throughout June. By month end, the total coliform level was about 45 colony forming units per 100 mL. This was similar to previous years and typical of winter conditions.

**Nutrients**

*Phosphorus.* During June, the total phosphorus concentrations averaged 25% to 50% higher than the long-term, pre-inundation average in the south basin (**Figure 5**) and 50% to 100% higher in the north basin (**Figure 6**) of Sooke Reservoir. (**Note:** In the charts, the bars on each data point indicate the range of data observed from triplicate samples.)

*Nitrogen.* The total nitrogen levels in June remained at about 20% higher than the long-term pre-inundation average in both the south (**Figure 7**) and north basins (**Figure 8**) of Sooke Reservoir for the majority of the month. By month end, total nitrogen levels were similar, although somewhat lower than those of recent years.

### **Chlorophyll-a**

In June, chlorophyll-a concentrations (a general measure of algal populations) remained at about 50% above pre-inundation levels at the Intake Tower (**Figure 9**) and increased slightly in the north basin (**Figure 10**) in Sooke Reservoir as a result of the minor *Dinobryon* algal bloom. By month end, the chlorophyll-a concentrations in both basins were slightly above the pre-inundation levels and similar to previous years.

### **Algae**

In June, a minor bloom of a golden-brown algae called *Dinobryon* occurred in Sooke Reservoir. At high concentrations, this organism is capable of causing substantial taste and odour in the water. However, those concentrations were never reached and no water quality complaints were received during the bloom.

### **Inundation Scientific Advisory Working Group**

The Sooke Reservoir Inundation Scientific Advisory Working Group met on June 7. No specific concerns or recommendations were noted by the Working Group.

### RECOMMENDATION

That the Regional Water Supply Commission receive the staff report for information.

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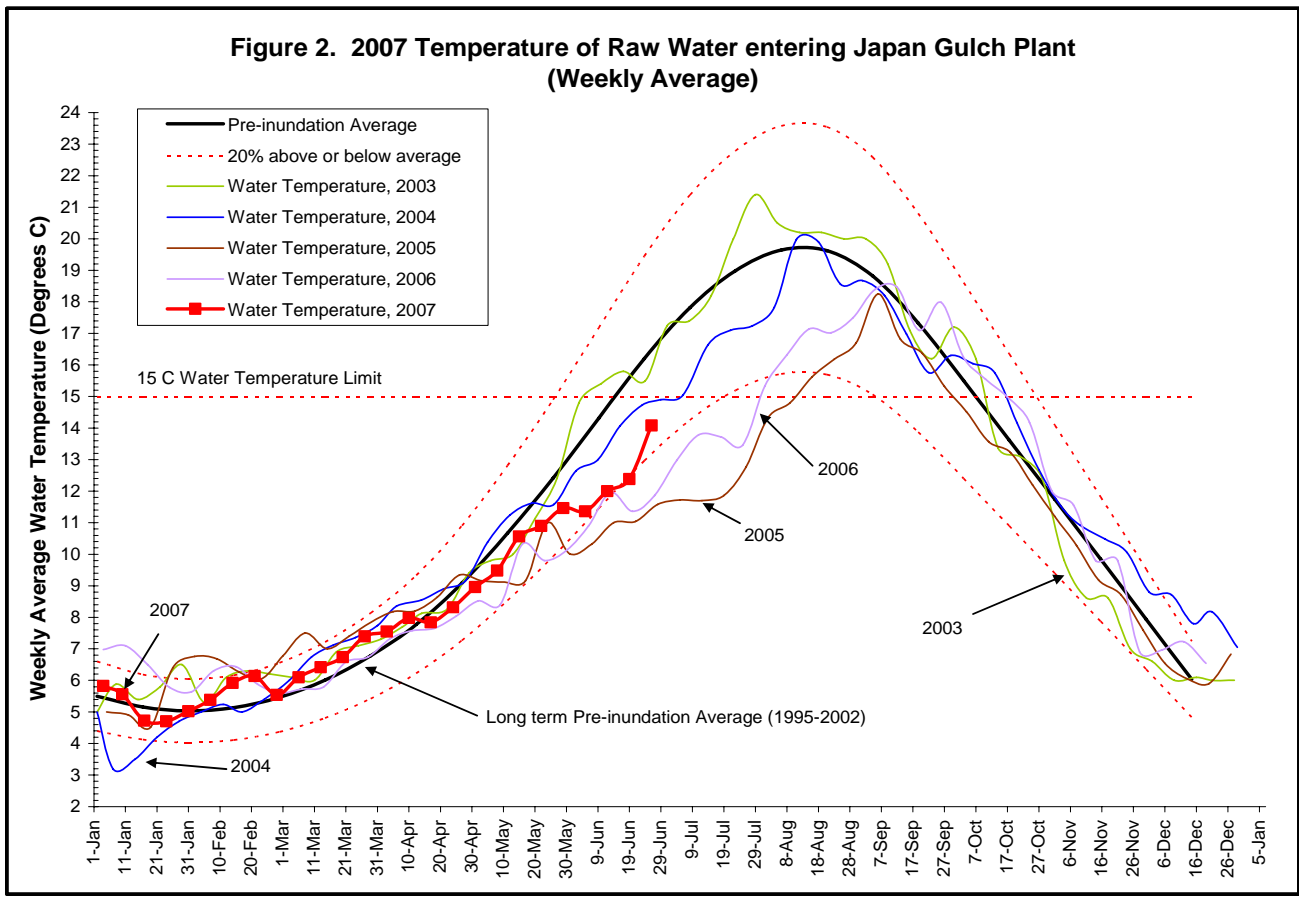
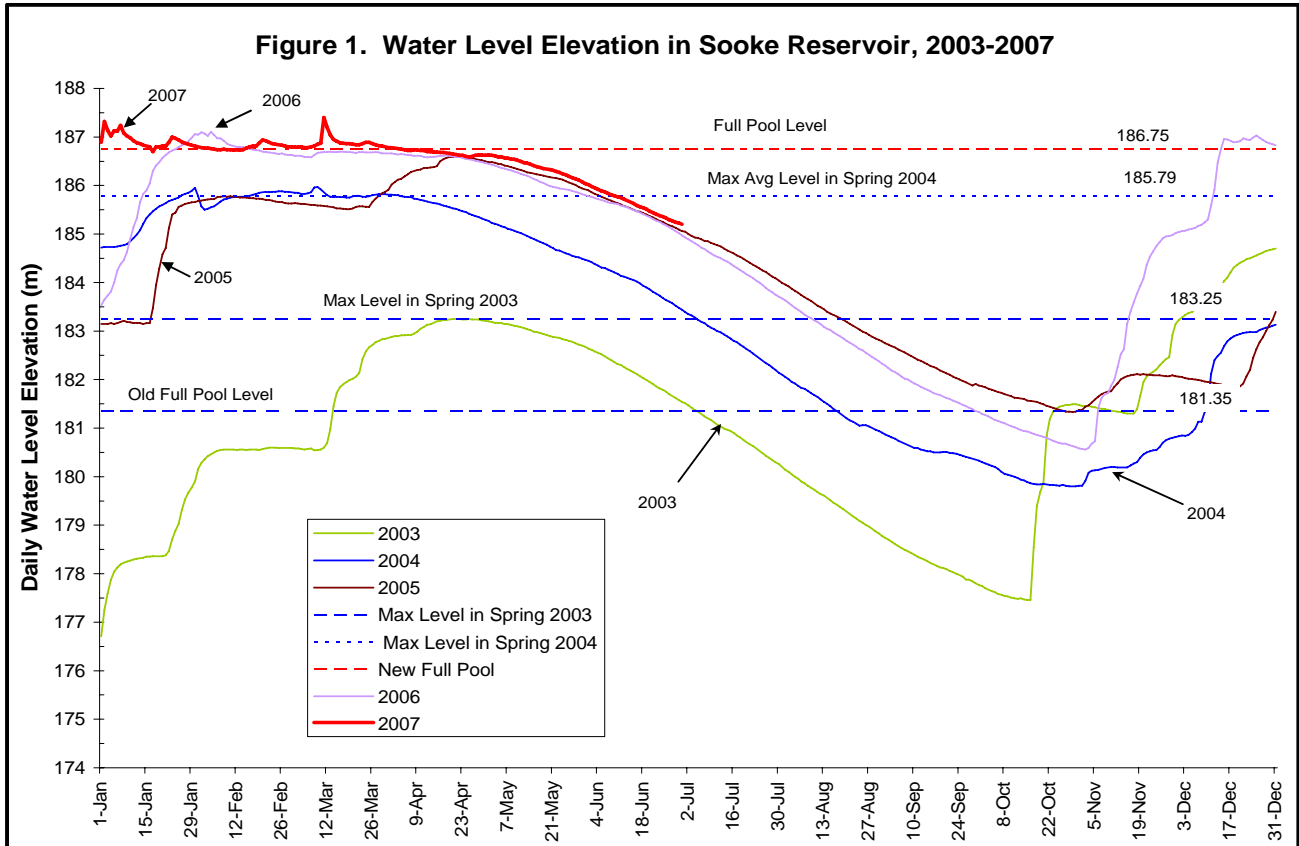
M. Roxborough  
Laboratory Manager, Water Quality

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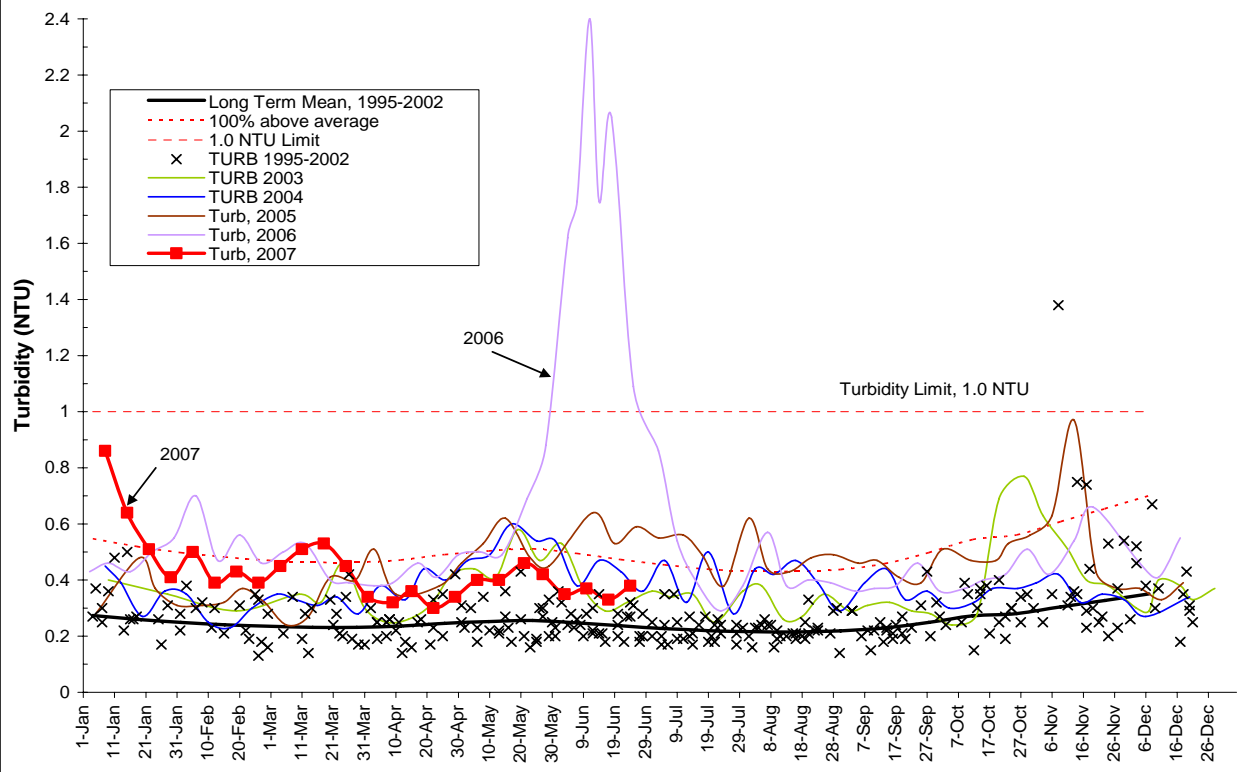
J. A. (Jack) Hull, MBA, P. Eng.  
General Manager, Water Services

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G. Stewart Irwin  
Senior Manager, Water Quality



**Figure 3. 2007 Turbidity in Sooke Reservoir  
 North Basin, 1m depth (SOL-04-01)**



**Figure 4. 2007 Water Transparency in Sooke Reservoir  
 Intake tower, (SOL-00-01)**

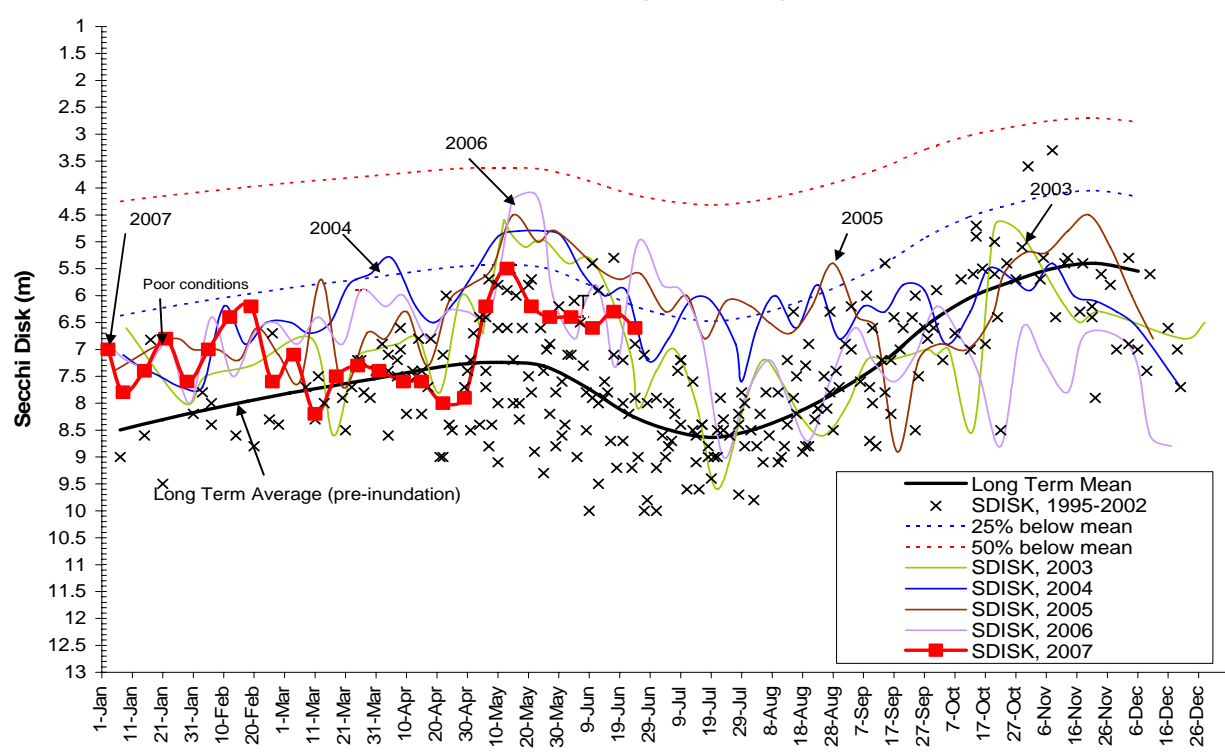


Figure 5. 2007 Total Phosphorus for Sooke Reservoir South basin, 1 m depth (SOL-01-01)

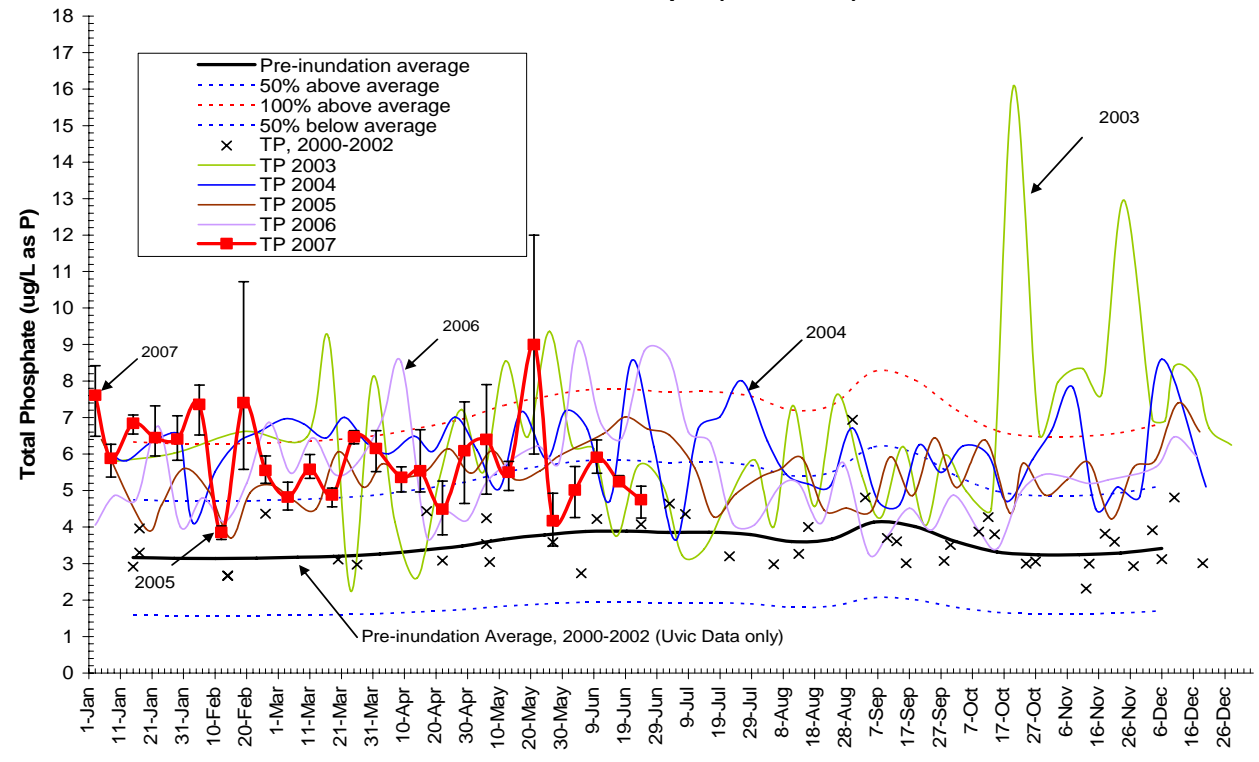
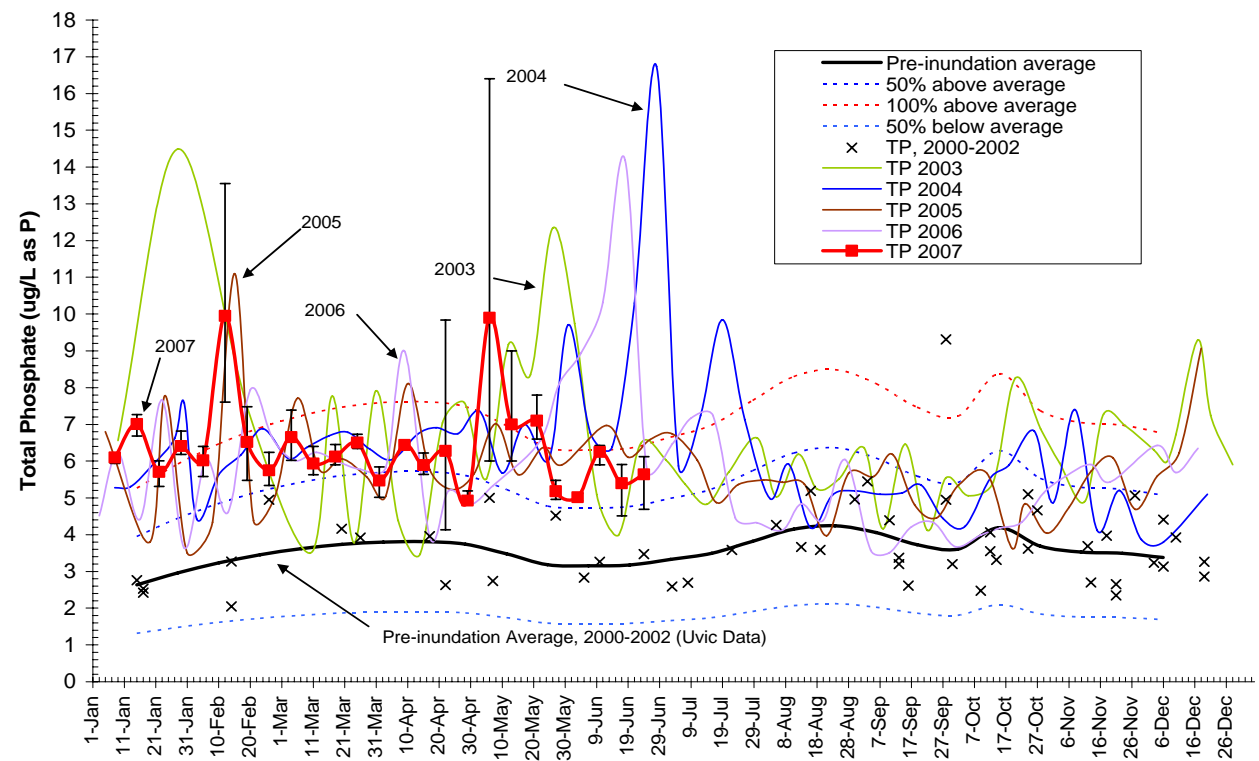


Figure 6. 2007 Total Phosphorus for Sooke Reservoir North basin, 1m depth (SOL-04-01)



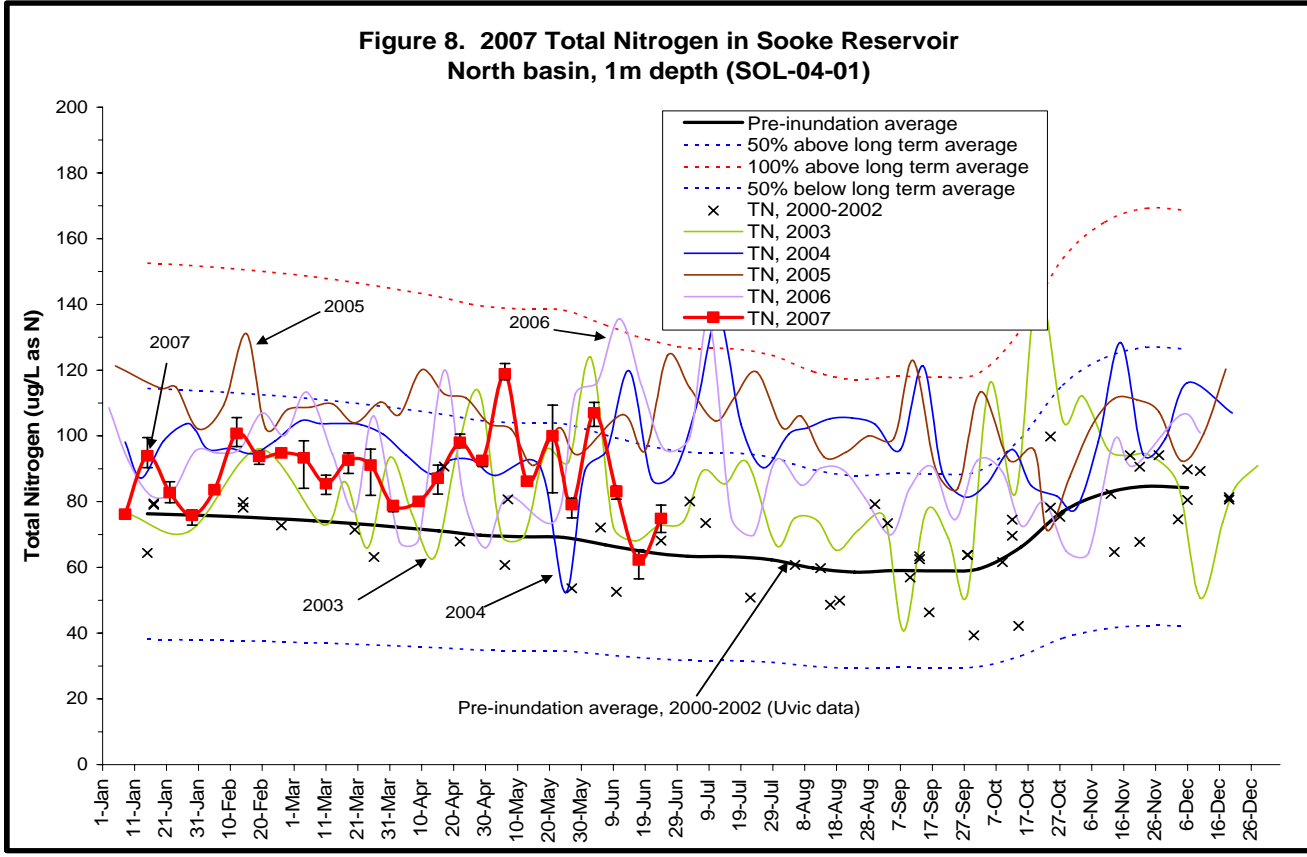
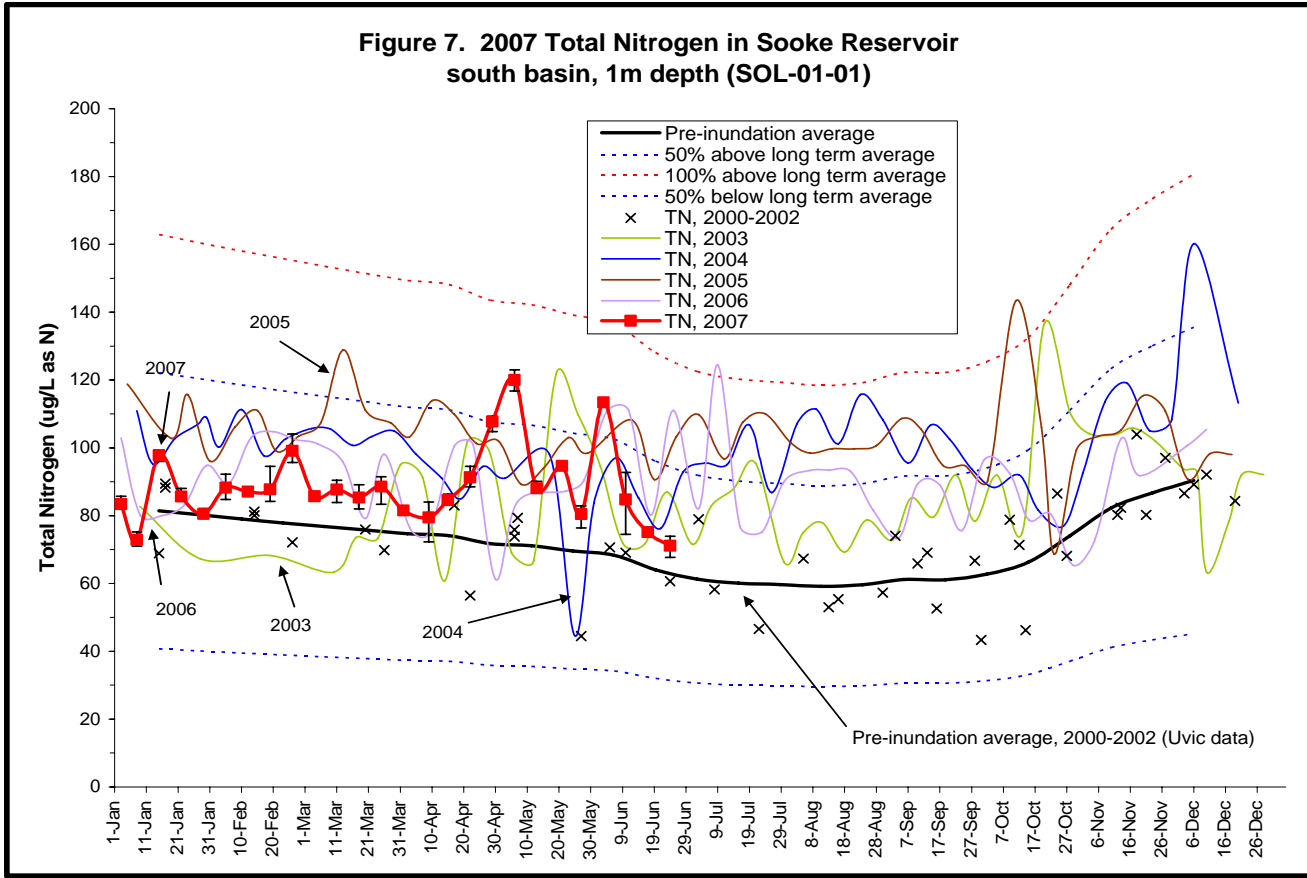


Figure 9. 2007 Chlorophyll-a in Sooke Reservoir Intake Tower, 1 m depth (SOL-00-01)

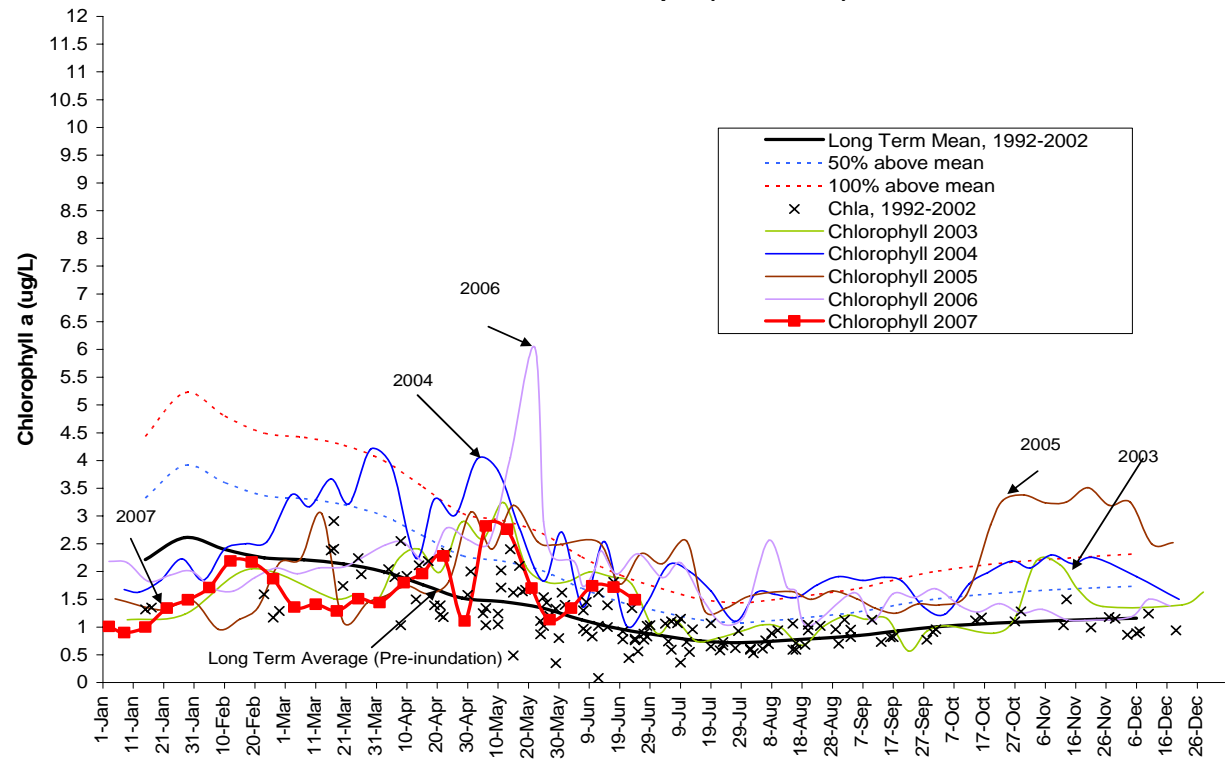


Figure 10. 2007 Chlorophyll-a in Sooke Reservoir North Basin, 1 m depth (SOL-04-01)

