

Salinity distribution patterns: results from field surveys

Bob Spigel, NIWA, October 2009

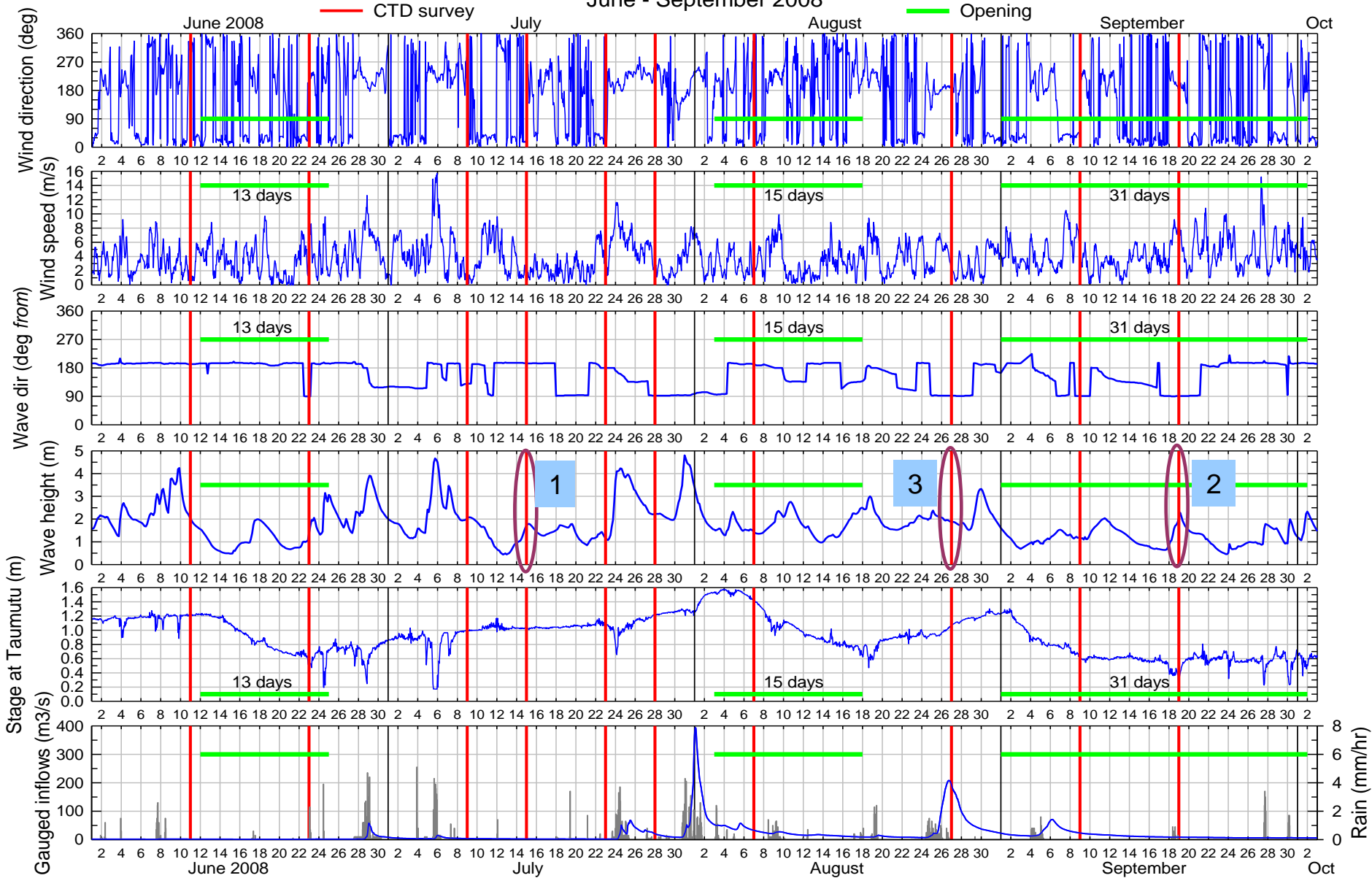
10 surveys conducted by ECan
in consultation with NIWA,
June – September 2008

Sampling Sites



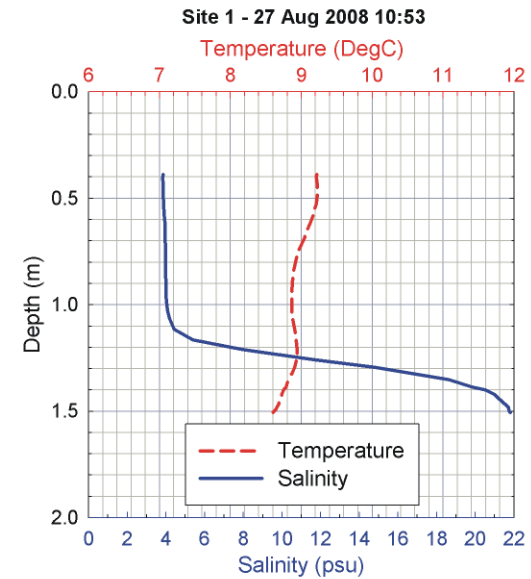
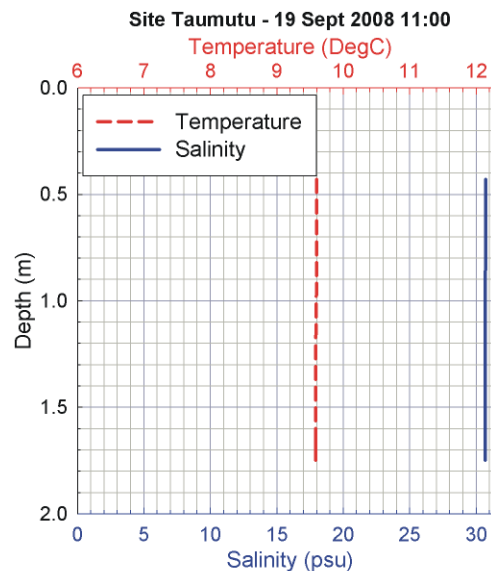
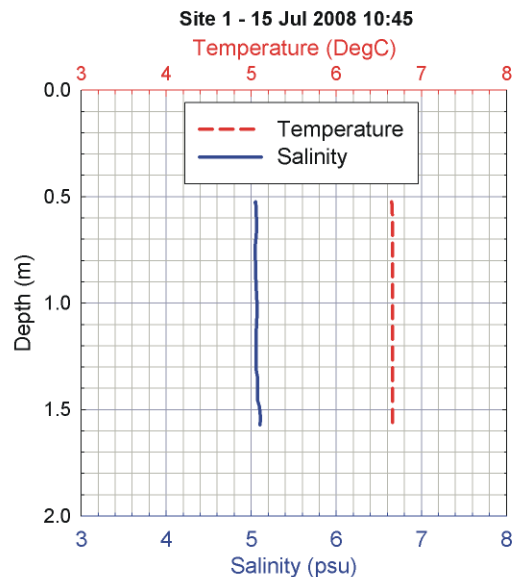
Weather conditions, openings/closings

June - September 2008



Three patterns for salinity distributions

1. Lake fairly well mixed horizontally and vertically – lake closed, no rough sea inflow in previous week.
2. High salinities near outlet, but vertically mixed – lake open, lake levels low enough to allow seawater inflow through the opening.
3. High salinities near outlet, but vertically stratified near outlet – lake closed, but high seas and waves, strong southerly winds cause waves to overtop barrier spit.



Examples:

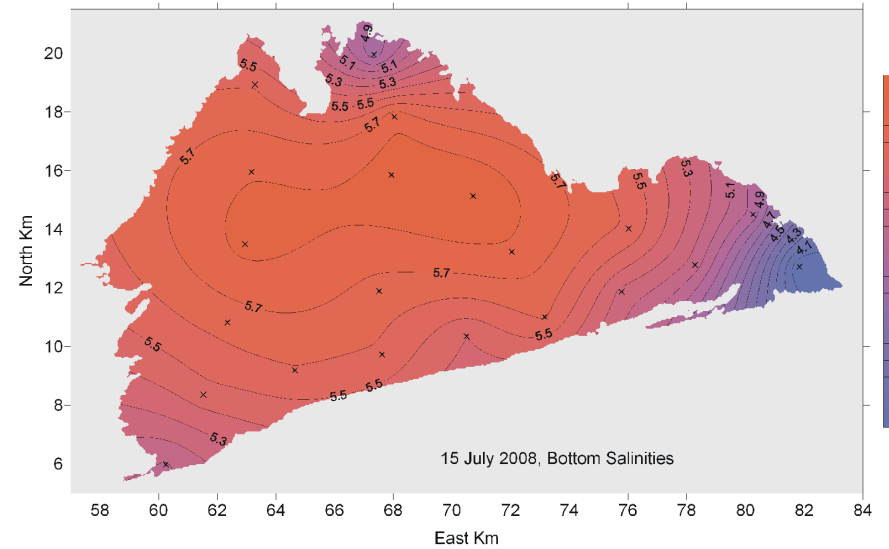
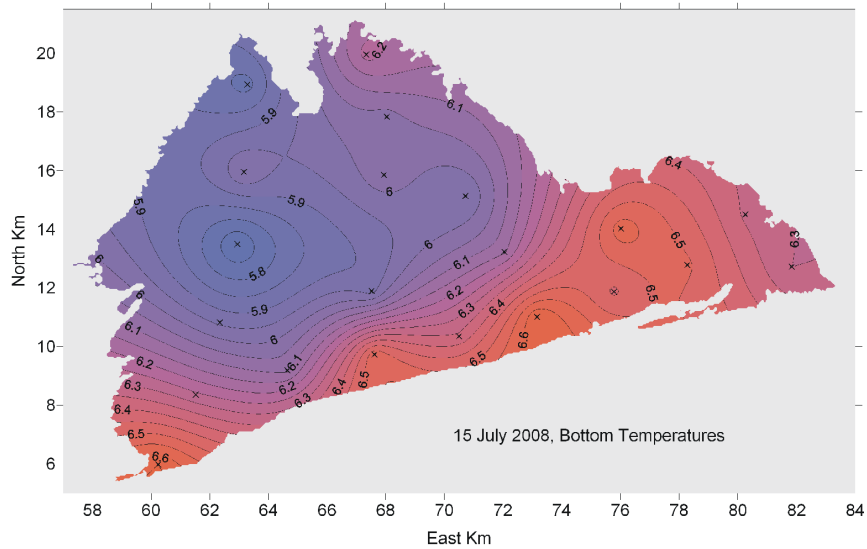
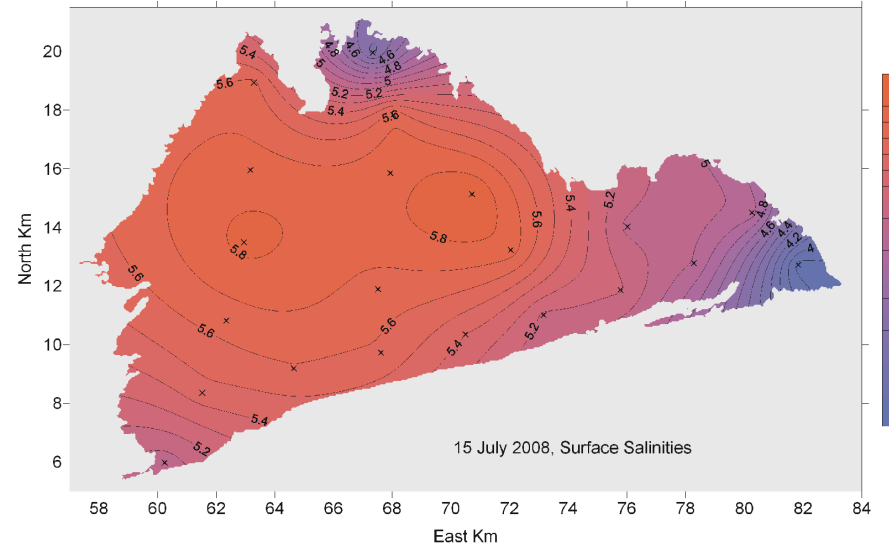
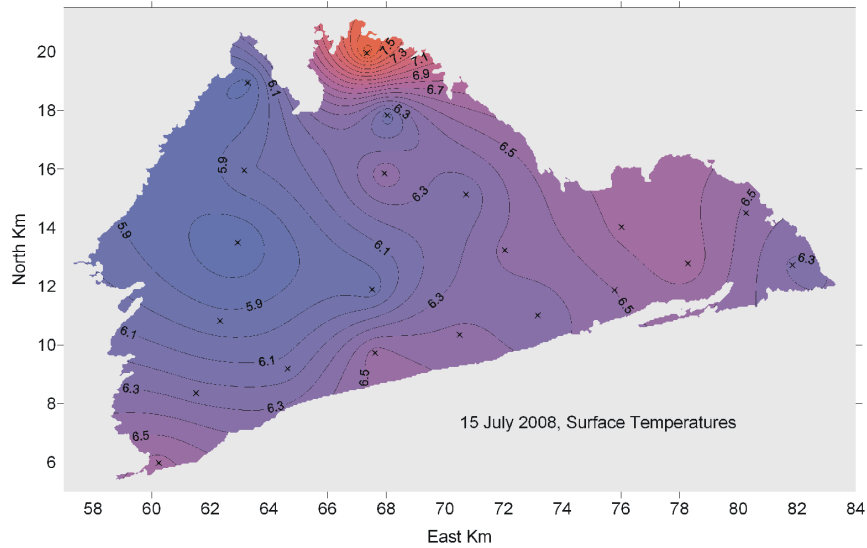
1

2

3

Example of pattern 1

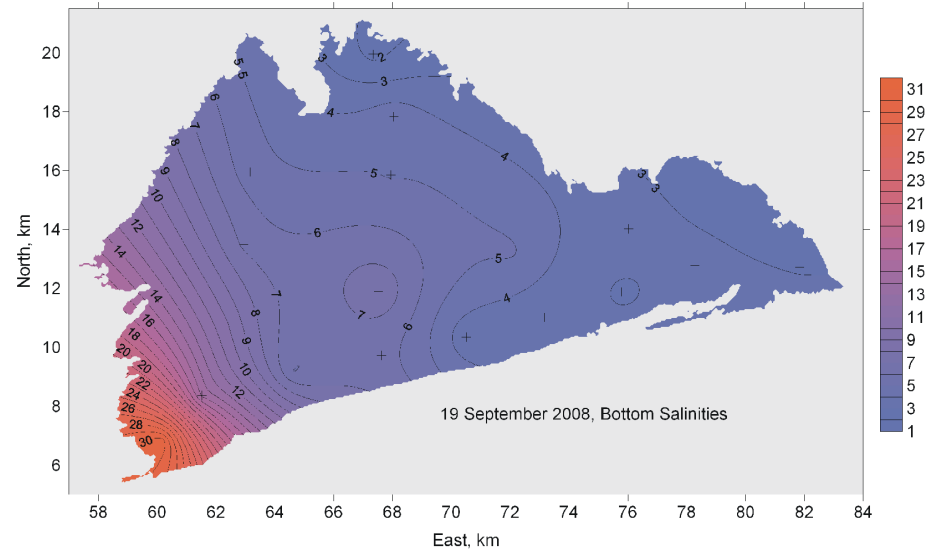
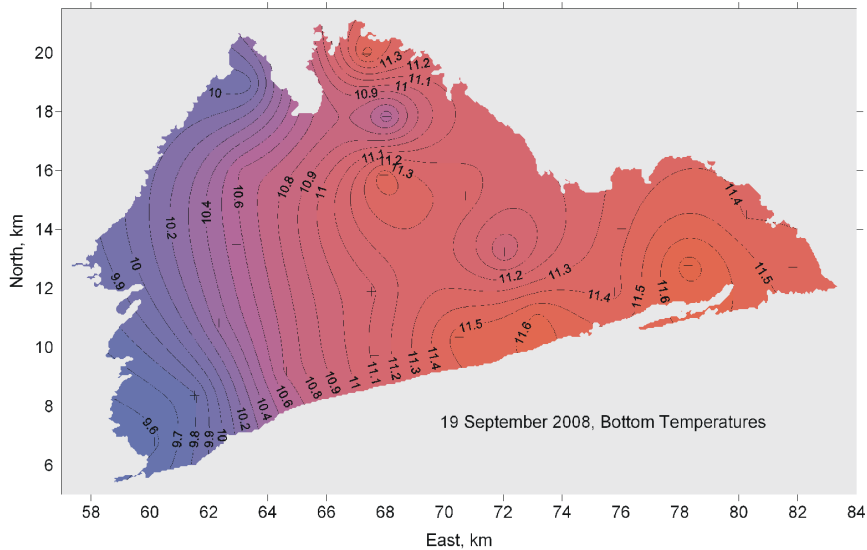
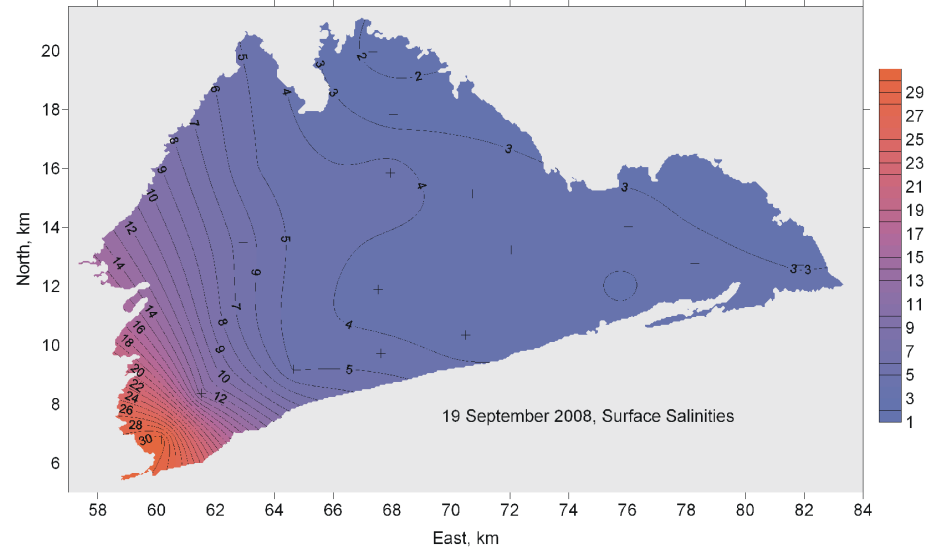
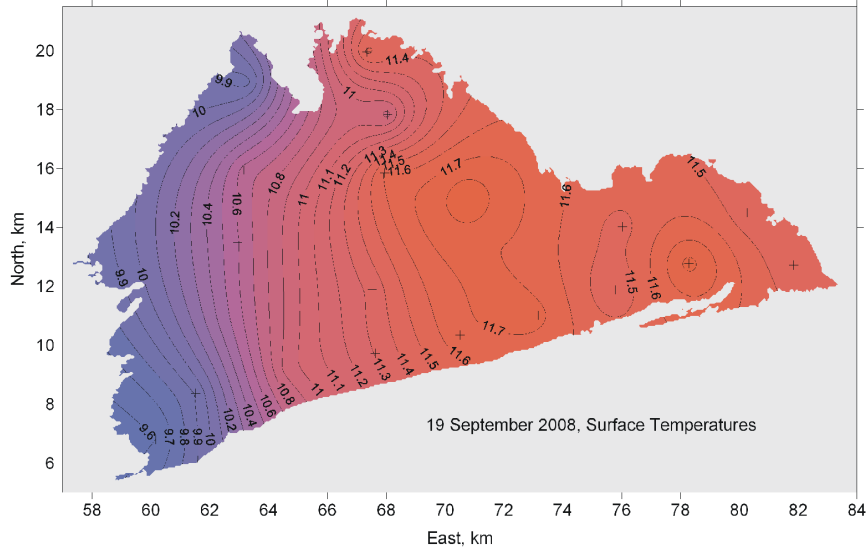
15 July 2008 - Lake closed , closed on 25 June 2008, closed for 20 days



Example of pattern 2

19 September 2008 - Lake open, opened on 1 September 2008, open for 18 days

No data from site 1; Taumutu used instead. Suspect data from site 4 (not plotted).



Example of pattern 3

27 August 2008 - Lake closed, closed on 18 August 2008, closed for 9 days

