**2018-2019 Mooring QA/QC Review**

**Note:** In instances where a mooring was hit and obviously displaced (changed depths or geographic locations significantly), the mooring data is to be split into two files.

In general: for all moorings. Deck units have been removed (at both deployment and retrieval) in the working files.

**E01-58**

**Microcat 8392 35m nominal**

This data is GTG. The salinity is a bit spikey in Feb-April and could be edited

**Microcat 8391 75m nominal**

This instrument died early on March 28 2019 with the last good measurement taken at 0445. As such, only the deployment comparison can be checked.

This data is considered GTG. It too shows spikes in the salinity that could use some editing.

**Microcat 20110 10mab**

Data is GTG

**EF04-O**

**Microcat 5308 at 35m nominal**

The original file did not have salinity and was back calculated using the derive option.

This microcat died on April 30, 2019 at 2100 and as such, on the deployment can be checked.

The salinity is a bit spikey and could use editing but otherwise, the data is GTG.

**Microcat 12944 at 75m nominal**

1. Pad the first 2 SBE DO values

There are some issues with calibrating this mooring since the calibration cast takes place inside the basin (EF03 as EF04 is not appropriate). The geographic and time differences can make it problematic to compare. To complicate it, there was a DO instrusion concurrently with our being at the site.

The 2019 data was checked to see if the trend was consistent and it was.

This data is considered GTG

**Microcat 11821 at 10mab**

1. Pad the first four SBE DO values

This depth suffers from similar issues as the 75m sensor but both sensors support each other with respect to sensor trend/behaviour. As such, the data is considered GTG.

**Hak1-C**

**Microcat 1614 at 40m nominal**

The original file did not have salinity output and was calculated using the derive function.

NOTE: this is a 5’ interval sampling.

There is some concern with this microcat and its programming to have a nominal depth of 39m since it is possible it is deeper than 39m based on the calibration cast. However, this year, we also more instances of rosette wake shed (pulls warmer less salty water down). The result is it may fail a point test but passes a TS test. Since many of the sensors on HAK1 show a similar problem, it is felt that the problem is wake shedding and as such, this data is considered GTG. There are a few salinity spikes that need to be edited out.

**Microcat 15624at 75m nominal**

Similar issues of rosette wake shed where TS tests are better than point tests.

Data considered GTG

**Microcat 15633 10mab**

Similar to others and SBE DO values within error of SBE43

Data is considered GTG.

**Juan1-B**

**Microcat 11819 at 40m nominal**

There is a timing issue between the calibration cast and the mooring, and it exists in an area of high gradient. Additionally, there does appear to be some wake shed from the rosette. The point tests are poor but the TS are good so this data is GTG.

 Check for spikes and edit.

**Microcat 15635 at 10mab**

The CTD cast was too shallow by 30m in 2018 for us to get a good comparison with deep water. The sensors look ok but the salinity is noisy and needs editing. The retrieval in 2019 show a good TS and the DO is within error.

Data is considered GTG.

**Scotts1-C**

**Microcat 8393 at 15m nominal**

Point tests were rather poor but there is 6 hours between mooring and cast and in an area of high gradients, this isn’t unusual. Even the TS tests though are problematic for 2018. In 2019, there are similar problems with offsets even though there is no timing issues witht 2019. It could be that there is a persistent offset associated with this CTD since the T and S offsets are similar at deployment and retrieval. However, it is also clear there could be wake shed with this cast. This microcat was on E01-57 in 2017/2018 but died early. There is no indication in that deployment there was a problem.

I’m inclined to leave this data lone until 2019/2020 data comes up.

Data is GTG

**Microcat 5309 at 40m nominal**

This instrument did not operate. No files

**Microcat 12950 at 10mab.**

Similar to the microcat above, the point test are bad, showing the CTD being warmer and less salty than the microcat (usually a sign of wake shed). There is no geographic issues related to this discrepancy and timing seems ok. The TS tests however, do problem to be quite good, so this data is considered GTG.

**Scotts2-C**

**Microcat 20104 at 40m nominal**

There is a salinity spike that needs editing.

Pad the first SBE DO

The point tests look bad but the TS are good so it can likely be wake shed again.

Data is considered GTG

**Microcat 9037 at 100m nominal**

There are some salinity spikes that need editing.

In 2018 the point tests are good but does show quite a bit of gradient.

2019, the point tests are poor but the TS is good…again with the same pattern of being slightly too warm and less salty. Overall it appears that the shed wake over the cruise could be 5-12m when it happened.

Data is considered GTG

**Microcat 9036 at 200m nominal**

Salinity spikes may need editing (towards the end of the deployment).

Pad the first two SBE DO values.

In 2018 the point tests were really poor for both T and S and the TS seemed to be off mostly in S space. The 2019 data though was good for point tests.

Data is considered GTG

**Microcat 12948 at 11mab**

Pad the first four SBE DO values. There is the odd salinity spike to edit out.

Data is considered GTG

**SRN1-B**

**Microcat 11813 at 40m nominal**

The 2018 point tests were very good. In 2019, roughly a 3m shed wake the TS is good and the DO is within error.

Pad first SBE DO and remove the few salinity spikes

Data is considered GTG

**Microcat 14491 at 150m nominal**

Data is GTG

Pad first SBE DO and check for salinity spikes to edit.

**Microcat 12945 at 11 mab**

Pad the first SBE DO.

There were issues with this conductivity cell. On October 4, 2018 the conductivity goes too high but seems to be re-established by October 31. In January 28, it becomes too high, is erratic and then fails to a too low value. .

My recommendation

1. Accept T and DO
2. Remove/pad all salinity after September 31

The DO seems unaffected by the conductivity cell failure and the point tests on it are good and within errors.

**Chat2-A**

**Microcat 11733 at 15m nominal**

The original file was not converted in the field, so a cnv was created.

A few salinity spikes will need editing.

In both 2018 and 2019, the point test was very poor but there were several hours difference and in a region of high gradient. The data though look very good in TS space.

Data is considered GTG

**Microcat 11726 at 40m nominal**

The original filed was not converted in the field so a cnv file was created.

A few salinity spikes in late May will need to be edited out.

In both 2018 and 2019, the point test was very poor but there were several hours difference and in a region of high gradient. The data though look very good in TS space.

Data is considered GTG

**Microcat 15686**

It appears that although this is listed on the mooring diagram, it does not exist.

**Microcat 15631 at 10mab**

The original filed was not converted in the field so a cnv file was created.

A few salinity spikes in late May will need to be edited out.

In both 2018 and 2019, the point test was very poor but there were several hours difference and in a region of high gradient. The data though look very good in TS space.

Data is considered GTG

**LBB-1**

**Microcat 11822 at 45m nominal**

For both 2018 and 2019, the point tests look excellent.

Pad the first two SBE DO

Data are GTG

**Microcat 11812 at 10mab**

For both 2018 and 2019, the point tests look excellent.

Pad the first two valid SBE DO

Data are GTG

**BP1-58**

**5304 at 35m nominal**

This is an older microcat that does not have a xlmcon file. Unfortunately, the salinity was not an output variable. Seabird compiled a workable xlmcon and then sent me a new cnv file with salinity.

This unit died on 20/12/2018 at 1400

The point tests in 2018 were poor but the TS tests were good and it is quite possible that 12m of wake shed did occur.

The data is GTG, some salinity spikes need removal

**Microcat 12943 at 10mab**

There is some spikes that require removal.

Originally I was concerned about the pattern of behaviour in the SBE DO (with ranges of 2-6ml/L) however, previous years studies show this to be the norm.

Secondly, the TS and point tests in 2018 were quite poor (with a discrepancy of only 7 hours but the mooring itself does show changes of 0.2 degC and 0.1 salinity and 0.1ml/L within a 7 hour period itself. With the TS, some of the data falls nice on the 911 line, while others do not, so this place seems to be quite variable and dynamic.

In 2019, the point test was good. I would like to discuss this with the PIs first and so please do not archive.

**Moorings that were Hit**

This data, were possible, will be split into two files representing pre-hit and post-hit. Some instruments though, post hit may have no viable data. That being said, the excel files provided only show one data stream and will need to be split at the appropriate time stamp.

**A1-58**

This mooring was hit on 03/05/2019 at 2315 and dragged into shallower water.

The original location
48 32.044 126 11.491 496m

Dragged south approximately 2.74km

48 30.920 126.11.06 420m

The following microcat data are still not in the archive. I am waiting on Lucius to upload them.

SN: 11729 (35m); 20103 (100m) and 20111 (200m). These units were cut free but were recovered.

**Microcat 5305 at 300m nominal**

The hit is more apparent in TS space than point tests. Unfortunately, this unit also died early, on June 29, 2019 at 0715.

The onset comparisons are good for point tests and since it died early, there is no retrieval comparison.

Data is considered GTG.

**Microcat 11820 at 10mab**

This one does have a serious salinity issue. It requires further discussion with PIs. Please do not archive this microcat yet.

**Chat 1-A**

**SBE16p 4196+2290 (Eco FLNTU)**

NOTE: this SBE unit was in PDT. The file has converstion to UTC

Fluorescence is in ug/L. NTU is unit-less. V0 and V1 are raw voltages for those two channels.

This mooring was hit December 1, 2018 and dragged 1.4km NW

Original location

54 12.06 130 27.14 128m

New Location

54 12.756 130 27.464 ?m

The temperature seems unaffected and salinity only slight so. With this sensor package though, we believe that it lost its floatation and was hanging upside down since the change in depth between the two time periods is not large.

**Prehit:** in 2018 the onset shows a good point test

Data is GTG

**Post-hit**

The retrieval point test is good

Data GTG

**Microcat 15634 at 10mab**

This sensor package had a much bigger change in depth overall, but surprisingly, there is little disturbance in the T and S and DO signal.

All data is GTG as point tests are excellent.

**LBA-1**

This mooring was hit on 26/02/2019 at 1930. It wasn’t dragged far but the depth difference is significant. The data for the top two microcats post-hit is to be deleted/removed.

Original location:

50 54.132 127 38.249 449m

New Location:

50 54.011 127 38.441 330m

**Microcat 11816 at 45m nominal**

Originally when looking at the data stream, I thought there were electrical board issues since all variables seemed rather spikey. Looking at pressure, in the space of a couple of hours, pressure seemed to vary greatly. However, the unitl 11814 at 150m shows the same pattern, so I do believe it to be real and could indicate a very dynamic system or an issue with the mooring.

The 2018 onset point test was good.

We can not use the 2019-069 cast, but February Line P 2019-001 did visit this mooring and the point test from that cast looks good.

Remove the first SBE DO value

Data pre-hit is GTG

**Microcat 11814 at 150m nominal**

Much like 11816, there is a very spikey pattern to the sensors but these seem to be “real.”

Pad the first two SBE DO values

Point tests in 2018 and the February Line P look good.

All data pre-hit is GTG

**Microcat 11815 10mab**

This data can be split into two files since the post-hit data is still available.

In 2018, the calibration cast did not go deep enough but the point tests look good, as do the February Line P point tests.

Pre-hit data is GTG

For post-hit, we can only really compare against 2019-069 and the point tests are good.

Post-hit data is GTG

**SOGN2-F**

SBE 16p 4197+927 (Eco FLNTU)

Fluorescence is in ug/L. NTU is unit-less. V0 and V1 are raw voltages for those two channels.

This mooring was hit 02/12/2018 after 0800.

The data post- hit is not reliable and should be deleted.

We can only compare the 2018 deployment and the TS tests were good.

Data is considered GTG