2nd revision:

Comment on: "Technical Note: An Autonomous Flow through Salinity and Temperature Perturbation Mesocosm System for Multi-stressor Experiments" – Version 2

Dear authors,

Dear editors,

Overall, the paper indeed improved significantly between versions 1 and 2. However, it is imo still pretty far from being publishable: The text is in parts still clumsy/sloppily and not very accurately written. This might be due to the 1st author being rather unexperienced, but at least two very experienced co-authors should also take care of a scientifically proper text.

Furthermore, the very important figure 1 is somewhat better than the previous figure - but still (due to poor execution), confusing and far from a professional sketch that the paper requires (and deserves).

Finally, I don't know if this is due to being unexperienced or active ignorance or not taking the reviewers serious: (At least) in three cases in the answer to reviewers comments the authors write that they changed the text according to the reviewers suggestion - but actually did not do so:

1) they still write 'setpoint' instead of 'nominal value'

2) they still write 'valve-open percentage' instead of 'valve opening percentage'

[Both are no major points, still they should not write that they changed it - and then don't...!]

3) In their responses to the 1st reviews, they advertise a figure on oxygen data from the mesocosms, which would have improved the paper, significantly. However, its missing in this version....

I don't know what to say...

Details (again, mixed minor and major):

L 72: '…will be affected when / while assemblages adjust…'

L 74: 'Methodological approaches to assesS and characterizE the responseS of organisms…'

LL 74-79: Sentence too long (and weird): Make a full-stop after the parentheses in L 77!

L 109: write 'above' instead of 'previously'

L 112: 'In THE initial deployment…'

L 143: replace 'shoal' by 'reduce'

L 144: '…in the Kongsfjorden environment…'

L 144–146: Make it two sentences: '… deployment of the SalTExPreS. It was placed on a concrete platform…'

L 148: Replace 'represent' by 'simulate'

L 149: Replace 'examined' by 'supervised'

LL 149-150: Rephrase. It sounds like the communities can be found at 7m depth for 54 days, while you want to say that the experiment took 54 days…

L 152: '- the details': delete 'the'

L 150–153: Move this sentence to the end of the paragraph!

L 157: '11m' confusing: You want to simulate a -7m community but measure the fjord conditions at 11m???

L 166: 7m or 11m???

L 171: Now its 10m??? Clarify!

L 172: '… that was tapped into an underwater intake pipe AND that fed a header tank…'

L 176: 'plumbed'…? What do you ant to say?

L 178 and L181: Dot missing after 'Fig'

L 182: '…from the tap which IS fed by the…' (guess this is still the case.)

L 185: delete last part of the sentence (', where flow rates of 7 – 8 L…') as this is redundant to the previous information given.

L 186: replace 'incubations' by 'interruptions'

L 188 write: '(3 treatments and 1 control, each with 3 replicates)'

LL 191-192 write: 'Fiberglass insulation at the outside of each mesocosm reduced unintended changes in treatment water temperature.'

L 193: delete comma after 'warmed'

L 196: no hyphen between flow and line

LL 197-198: move '12 in total' to the end of the sentence : (12 in total, Fig. 1)

LL 203–205: redundant and commonplace: rephrase!

L 205: delete 'all'

L 206: delete comma after 'valves'

LL 206–207 just write: '…logged every minute and displayed on the user interface (Fig. A3).'

L 209 (and throughout the whole manuscript!): replace 'setpoint' by 'nominal value'

L 231: 1st mention of ‘PLC’: define here as 'Programmable Logic Controller (PLC)’!

L 231: ‘…informing ON proper communication…’

L 233 (and elsewhere): replace ‘valve-open percentage’ by 'valve opening percentage'

L 237: % is no unit of concentration! Write: ‘.., O2 saturation (%),..’

L 247, 249 and elsewhere: replace ‘control condition’ by ‘control treatment’ or just ‘control’

L 251: comma after ‘period’

L 251 ‘across the 3 replicates’, clarify: does this mean this is the average off the deviation over all 3 control replicates - or was the average in each replicate less than 0.3°C?

L 251-254: replace ‘was based on’ by ‘was achieved by’. Furthermore: This sentence doesn't make sense at all: The ability to read data does not help to keep regulation quality high (low deviation from the nominal value). The fast response of the system to changes in the ferrybox data is the key player here...

L 253-254: put last part of the sentence (after the comma) into parentheses.

L 262 write: ‘…situated at 90 m depth in the fjord was used from…’

L 263-264: write: ‘…at 10 m depth was repaired.’ (motor malfunction info is irrelevant)

L 275: replace ‘deployment’ by e.g. ‘experiment’

L 281-282: delete: ‘…after the final incremental increase was programmed.’

L 2282-284, Rephrase: I don’t understand this sentence…

L 303-304: Please discuss: The ability to add warmed seawater also to the control system would allow for keeping the control stable even when using the 90m backup pump (in a future setup).

L 311: replace ‘inaugural’ by ‘first’

L 317: replace ‘permits the’ by ‘allows for the’

L 325, write: ‘Since the initial experiment, we implemented a number of changes to improve the performance of the system which have been realized during a second experiment in …’

L 332-334, write: ‘…kept deviations in the 9 different mesocosms at < 0.5°C for 94% of the time (79% in the first experiment).

L 334: ‘During the first experiment…’

L 335: ‘largeR deviations’

L 336: ‘…flow rates OF < 2 L min-1…’

L 337: Simple software modifications

L 340-341, just write: ‘…data were maintained solved most of the issues.’

L 343, write: ‘…and clogging of the seawater inlet are issues that need to be addressed whenever…’

L 345: How do you prevent clogging or remove the stucked material? Can the pumping direction be reversed?

L 346-347, write …' independently regulate experimental conditions in a …'

L 350: replace 'its' by 'the system's'

L 351: new sentence after '(e.g. tidally).'

L 351: replace 'mimic a future scenario' by 'mimic future scenarios'

Figure 1:

- Sensor labels too small
- 'Control' doesn't make sense as the violet/dark blue line also supplies the 'treatments'
- missleading: are the yellow marked valves 'pressure regulation valves' or 'pressure sensors' (as stated in the text below)? Or aren't the yellow marked things in the photos the same as in the sketch?
- Black line: where does the freshwater enter the system (and where starts the arrow that points at the hose in the photo)
- Overall: using some colorful lines as the actual pipes/tubes of the system - and other colorful lines as arrows that point at the fotos is very confusing and generally unacceptable for a scientific sketch.
  I suggest that you use a number code (like in the foto - and write the same numbers next to the respective line or valve in the sketch.
- It is very important to be exact into each single detail in this figure!
- L 539: that lead to all 12 3-way regulator valves
- L 544: photosynthetically without capital 'P'

Figure 2:

- L 560-561: Not 'regulation': Never write what can be interpreted from a figure in the caption, but just what can be seen! Just write: 'Mean temperature offsets of all applied conditions. Blue: offset of the control from the FerryBox. Dark green, light green and yellow: offsets of the treatments 1, 2 and 3 from the control, respectively.'
- L 562: end sentence after 'standard deviation'. (Short sentences are good!)

Figure 3: 'mean' values: averaged across how many single datapoints? resp. across how much time???