

Kent Headley Sorted By Project

300057 - Mooring Maintenance

- Meeting with Jared, Francisco, and team to discuss mooring proposal (Week 6)
- helped locate source of OASIS email (Week 16)
- developing requirements and estimate basis for 2026 mooring proposal (Week 19)
- worked on some slides for abstract (Week 20)
- Prepared some slides for the abstract presentation (Week 21)
- updated OASIS firmware image for M1 202507 deployment (used latest image with GPS and metsys updates, from 2023) (Week 25)
- checked on mooring data streams - so far so good. (Week 27)

300078 - DMO Support - AUV

- Attended meeting re using LRAUV hardware for Dorado (Week 6)
- working on new Dorado behaviors to enable I2Map missions: long transit, low power loiter, start time based on absolute clock (date/time) (Week 8)
- Addressed comments for code review of pull request for change set with Dorado sim w/ TRN in the loop (Week 14)
- Attended Hyperion meeting (Week 14)
- worked on behaviors: transit and low-power station keeping (Week 16)
- sketching out related concept for Layered Control substacks, a looping mechanism (Week 16)
- working on experimental substack scheme to implement repeated layered control behaviors. (Week 19)
- Added feature to the substack proof-of-concept that enables a substack to be re-run, i.e. it can be used like a macro (Week 20)
- Next steps are to review with Erik and Rich, and experiment with more use cases (Week 20)
- Met w/ Erik re macro behaviors for informal review/feedback (Week 22)
- Looking into suggested semantics changes (Week 22)
- refactored behavior macro code based on demo feedback from Erik. In new version, the macro semantics in the mission file separate the macro and mission definitions, and make them more intuitive. Internally, the code uses 'macro' rather 'substack' naming conventions. (Week 23)
- started reviewing I2MAP mission to streamline using macros (Week 26)
- testing macro-enabled i2map towout mission in simulation. These are long missions, so take hours to run in full; when issues occur late in the process, there is an exercise to isolate the issue in a reasonable amount of time before testing the full sim again. Even short runs have quite a bit of overhead, since the compile time is fairly long. (Week 27)

- Prepared a set of (4) mission scripts to test new features in Dorado layered control that will enable i2map to tow out missions. The features include the ability to start/end behaviors using the system clock (specified date/time) rather than the (relative) mission clock. A second feature enables the definition of macros, a set of behaviors that can be repeated and reused, e.g. to transit to a location, surfacing periodically for a GPS update, or low-power station keeping.
The plan is to test these Thursday on a test cruise to C1. (Week 42)
- The test day last week ran into some snags, but one of the test missions for layered control mods was successfully completed (test real-time clock start/end times for behavior). Remaining tests are for a new macro feature (repeatable behavior sequences). (Week 43)
- DMO is planning a Paragon trip Friday to continue testing of the layered control updates adding real time mission start/end times, and macro behaviors: repeatable, recallable behavior sets with special end conditions (location, cycles, etc.) (Week 45)
- updated part of GUI layout to group controls in a more sensible way (Week 46)
- working on integrating MVC power supply serial output into GUI (Week 46)
- Tad and Jordan tried out the transit macro, and reported that it went off course. Haven't had a chance to look at the logs yet. (Week 47)

3000xx - DMO Support - MARS O&M

- Working with Mike Risi to come up to speed on MARS software transfer from UW (Week 34)
- built repo, trying out hardware (Week 34)
- working on cloning test node SSD (Week 35)
- reviewing codebase (Week 35)
- cloned test node hardware stack SSD (Week 37)
- reviewing node control software logging (Week 37)
- Implemented proposed patch for GUI bug (relay state reported incorrectly, i.e. out of sync with true state). The patch addresses two issues in the current implementation: a single variable was used to maintain state for multiple ports, and the state variable was not being updated by other operations that changed the state. IMO, there is an underlying issue, which is that the existing code always assumes that hardware operation function calls succeed, when in fact they can fail without changing the hardware state. (Week 42)
- Meeting with MARS team (Week 42)
- Wrote and tested an improved implementation of a GUI bug fix to address incorrect relay state indication. In the new version, hardware write results are used to indicate success/failure, eliminating the need to maintain relay state in the GUI. (Week 43)
- Testing some GUI updates: adding support for MVC serial output status data. This is working as well as I can test it off-target; will test when I'm back in the office. (Week 47)

500055 - VARS, M3/RS, DSG

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701147 - DMO Support - MARS O&M

- Cloned MARS PC104 stack drive and sent copies to UW (Week 1)
- Updated GUI layout: add MVC and Hotel tabs, distribute ADC tab content across new tabs. (Week 48)
- Test/debug changes (Week 48)
- tested a change set that provides indicators for the channel currently being scanned for groundfaults, and calculation/display of a timing hint. (Week 50)
- configuration/test of remote desktop setup from mac/linux (Week 50)
- Worked with Bryan Schaefer and Adriana to load the GUI updates onto the production MARS stack. Initial tests were good, and found a couple of issues exposed by having the real hardware. Those have been addressed, and expected to re-test this week. (Week 51)

901007 - Benthic Biology & Ecology

- Figured out complete build and programming process for MRS/BRS chamber controller firmware. It's a two step process involving a bootloader as well as firmware image load. Building the code relies on some special cables and old Windows software. I can now build and install both the bootloader and firmware, and am putting together some documentation. (Week 25)
- checked in new chamber controller programming doc and included on oasis5 doc website (<http://fangtooth2.shore.mbari.org/oasis5>) (Week 26)
- Ran a series of simulations with macro-enabled script for an I2MAP tow-out mission. Wrote up and posted the results to Erik and Rob. The current and new script behaved similarly, and I believe that the features are ready to test in the tank and/or at sea. (Week 28)
- The new features include macros, which allow users to group and reuse a sequence of behaviors, and stop using different end conditions. There is also a new scheduling feature that allows behaviors (or macros) to be started at a specified date/time. Together, enable precise mission scheduling, reduce cut-and-paste code and associated errors, and make mission scripts more modular, readable, and reusable. (Week 28)
- found some chamber controller hardware (Week 35)

901101 - Seafloor Mapping

- Searching for root cause of a baffling bug, which appears to be some form of memory corruption. A member object is fine when accessed via one method, but not from another when accessed in exactly the same way. (Week 1)

- Chatted with Dave re upcoming April/May cruise days. Many moving parts, and plan is still in flux, but may want to try TRN on Ventana/LASS, possibly using Norbit and/or Reson sonars. It's a pretty short fuse (Apr 1-2). The Norbit requires new TRN code; working to get TRN for ROV up and running again. Justin Tucker provided some coordinate measurements for TRN sensors. (Week 12)
- Cruise next week cancelled (see precision control) (Week 13)
- looking at issue in mbtr (Week 15)
- synced MB-System with libtrnav (changes to ROV TRN, add TRN utilities to build) (Week 16)
- Performing timing tests on new decimation code. Dave C is reporting significantly increased run times when comparing new code to tag used for 2024 Axial. Working to reproduce those results. (Week 24)
- The TRN performance does seem to be improved in the new code, which may be due to the new decimation, or another change recommended by Steve Rock recently that was implemented after Axial 2024. (Week 24)
- Fixed issue in mbtrnpp in Ubuntu 24 build found by Dave C. The symptom was a SIGABRT raised by snprintf (actually snprintf_chk). Turns out _FORTIFY_SOURCE is enabled by default on Ubuntu24. Fortified source is a security feature to detect things like buffer overflows. Depending on how it is configured (as well as things like optimization, GNU_SOURCE, etc.), it provides compile time warnings and may replace various string and memory functions with its own ostensibly more secure versions - e.g. snprintf_chk - that check for risky conditions.

In this case, it raised SIGABRT at run time due to an invalid value for the buffer length argument passed to snprintf. Though the value was incorrect (+1 too large), the operation would not have overflowed the buffer. The fortified version of snprintf should have been able to determine that, so in that sense it's a false positive. It's concerning that it may bring a program down without warning; while it's a potentially useful security feature, it should be used carefully in the context of autonomous systems. It can be disabled/configured using the -D_FORTIFY_SOURCE compiler flag. (Week 25)

- syncing repos (Week 50)
- returning to some work started earlier this year related to using TRN on ROVs (Week 50)
- Updated the TRN CMakeLists build configuration files in libtrnav and MB-System to improve readability, remove unneeded stuff, support all libtrnav targets (which may be put into an optional build group). (Week 51)
- Sync'd trndev branch w/ master and libtrnav (Week 51)
- Reviewing work started 2025/03 to update ROV TRN to improve TRN plugin algorithm implementations and potentially fix issues, along with other TRN core updates based on input from Steve Rock. (Week 51)

901221 - Midwater Time Series

- Starting to work on Dorado code changes to Layered Control to support remote mission initiation (Week 6)
- Working on new AUV behaviors (Week 9)

- Reviewed with Erik the implementation of Behavior class feature enabling start/end times to use real time clock. (Week 10)
- Working on transit and low-power station keeping behaviors (Week 10)
- Added a station keeping substack to test mission to make it more like an i2map mission, and fixed a bug that caused a substack not to be activated. The test mission appears to be working in sim, though Matlab has been unavailable, so it hasn't been possible to review the results graphically. (Week 21)
- Trying to determine what codebase is used for chamber controllers. Bob H indicates is it O5 expander, but the hardware is quite different; it may actually be O4 chamber controller, or it's possible that the O5 firmware works for both. (Week 24)
- Got O4 chamber to build, but could not get the Java Unified Host Bootloader App (UHBA) to work on macOS. So much for "write once, run everywhere"...I was able to run UHBA on a windows machine. I could get UHBA running on macOS only using the Java 1.8 runtime that ships with MPLABX; however, the serial port stuff didn't work. I suspect a combination of old 32-bit JNI code that ships with UHBA and/or purejavacomm serial libraries that it depends on. (Week 24)
- Got some test software for the O5 expander working; it's modbus RTU, so rather painful to debug, but working now. (Week 24)
- trying to develop on wbs outline for M1 software for different options (Week 26)

902204 - Scalable Robotics

- weekly project meeting (Week 2)
- team is prepping for cruise next week to test SLAM and norbit sonar (no-op for me) (Week 2)
- project kickoff meeting, team is planning for cruise (this week) (Week 3)
- meeting with Dave, Giancarlo, Akshay re Norbit data processing. The open question is whether S7K is the best format to use for SR and Seafloor mapping, given that Norbit's S7K output implementation is tied to the Norbit GUI and doesn't support navigation/attitude/depth data. (Week 6)
- working on refactor of Oculus driver to abstract out the messaging implementation and Qt dependencies. The messaging work enables support of ROS and LCM; the Qt refactor is intended to decouple the core sonar driver from Qt to the extent possible. (Week 8)
- Wrote OculusPublisher, a message publishing wrapper with ROS and LCM implementations (Week 9)
- Spent some time trying to build ROS2 from source on M1 mac; unsuccessful so far. (Week 9)
- tank test oculus after publishing updates to support ROS and LCM configurations (Week 11)
- Tested Oculus LCM and ROS builds on miniROV during tank test last week; these worked well. (Week 12)
- Made bug fixes and updates to frames7k (S7K reader) utility (Week 12)
- project meeting (Week 15)
- prepped oculus sonar software for cruise days 5/1-5 (Week 19)

- investigating issue with mb1stream (part of multibeam ingest for SLAM pipeline) reported during cruise. Sonar data from mb1stream appeared to encompass less swath than expected, and to present asymmetrically. (Week 19)
- Investigating some issues reported with the mb1stream application: decreased swath width and asymmetric (off-center) beams (Week 20)
- So far, have not been able to reproduce the issue (Week 20)
- Did find a limitation in max number of beams in MB1 record, and updated for mb1stream (Week 20)
- Found root cause of issue reported from cruise in the mbtrnpp/mb1stream SLAM data. The issue was related to the logic that mbtrnpp uses for beam decimation/selection. An integer decimation modulus is typically > 1 in the TRN context that mbtrnpp is normally used. In the SLAM context, the modulus is reduced to 1, which selects the first N records in the specified swath. Also the number of beams requested is less than the number of beams in the requested swath. Thus, the sub-tend an angle less than the swath, and are not centered.
A new floating point scheme has been implemented that distributes the requested number of beams over the swath. It's in feature/compas-dev branch of MB-System, for testing with the SLAM pipeline. (Week 21)
- Proposed some changes to viz_bathy to make the display more intuitive (Week 21)
- Added cmake build to mb1stream (Week 22)
- Updates ready for testing (Week 22)
- Testing updates to MB-System (Week 22)
- Tested mbtrnpp decimation changes made for mb1stream, to ensure that there are no negative side effects in the TRN context. (Week 23)
- reviewed some changes to mb1stream proposed by Bastian, and pushed a test implementation to try. The changes are intended to simplify his workflow by flattening file output paths and enable mirroring in images. (Week 24)
- Issued pull request for file naming changes proposed by Bastian M. (Week 25)
- Notified Sebastian about changes to mbtrnpp (used for m1stream) (Week 25)
- fixed bug in LCM timestamps (Week 33)
- looking into a couple of faults that occurred in Oculus during arctic cruise (Week 39)
- pre-deployment updates/test of Oculus sonar driver (Week 41)
- investigating oculus driver crashes reported during arctic cruise (multiple times, after several hours of operation). No smoking gun; this one's likely going to be tricky to trap... (Week 41)
- spent a little time getting the Oculus SDK sonar viewer to build for macOS/linux, with an eye toward refactoring (at some point) the oculus GUI to use OpenGL rendering used by the SDK viewer. I have a feeling that the OpenGL texture mapping is more efficient/faster than my oculus gui. There were seemingly bugs in the SDK viewer, e.g. sending messages with 0 payload length and non-zero payloads, and also, the SDK viewer uses an older version of Qt and is configured for windows. I currently have it building with Qt 6 and though untested, should still build on windows. (Week 45)
- Added necessary protocol to oculus sim to work correctly with the oculus SDK viewer (and ViewPoint); (Week 45)

- checked out oculus sonar for tank test and MOB (Week 46)
- meeting (Week 49)

902405 - Precision Control Technologies

- meeting w/ Steve re TRN doc, reviews (Week 3)
- met with Steve last week re TRN doc and a pending code change (Week 6)
- working on TRN doc organization (Week 6)
- Reviewing draft of Steve Rock's text on TRN for doc (Week 9)
- Working on doc software/integration section material (Week 9)
- Reviewed Steve Rock's (excellent) TRN documentation sections (Week 10)
- Working on software documentation section (Week 10)
- working on TRN software documentation (Week 11)
- Added a lot of draft material for the TRN doc software section, revised structure, and circulated to Steve and Rich (Week 12)
- Worked on running TRN using a scalable robotics data set (norbit multibeam on minirov) (Week 13)
- Making progress, but still some anomalies; working to isolate code issues from data issues (Week 13)
- Setting up TRN configuration for LASS cruise (cancelled) (Week 13)
- Refactoring TRN plugin for LASS DVL on Ventana. Rejiggered the nav corrections for vehicle and LASS DVL (on rotating arm); these are different, and the new versions should also inform how the corrections work across other plugins. (Week 14)
- Refactored TRN geometry representation classes, adding base class accessor methods.. (Week 14)
- Wrote new TRN plugin for Norbit multibeam on miniROV (Week 14)
- Data is flowing in new plugins, though still testing whether TRN is working; for Norbit and LASS DVL, there are issues with the inputs, e.g. limited view, low vehicle speed, etc. May not be able to know without new data sets that address these issues. (Week 14)
- Code review pull request (Week 14)
- testing rov TRN updates (Week 15)
- added feature to TRN plot utility (Week 15)
- committed branch change set, (Week 16)
- trying out mkdocs (Week 16)
- reviewing Rich H LRAUV TRN doc (nice!) (Week 16)
- At Mike Risi's suggestion, estimating potential amount of Steve Rock time we could potentially use on a contract basis for various efforts (Week 20)
- testing mkdocs and related plugins for generating HTML and PDF documentation (Week 35)
 - the winning combination seems to be mkdocs + mkdocs-exporter-plugin. Together, they do a nice job of rendering multipage HTML and generating a monolithic PDF output. With a couple of other plugins, mkdocs and exporter also support mermaid2 graphs embedded in markdown, as well as macros (for dynamically inserting special fields) and templates (for configuring section cover pages). (Week 35)

- did not have luck using plugins that rely on weasyprint for PDF rendering on macOS. (Week 35)
- refactoring repo and TRN software guide (Week 35)
- pulling together content from Rock and Henthorn (Week 35)
- If both PDF and HTML documentation are a requirement, maintaining the source in single format is efficient; it's a toss up as to whether markdown is ultimately a net positive over HTML/CSS as a native source format. Perhaps so for straightforward markdown (basic images and text). It can quickly get fiddly when extending markdown to have greater control over formatting, e.g. tables, columns, PDF page breaks, etc., or using special content e.g. (mermaid) graphs, equations, etc.
Many PDF rendering solutions require embedding non-standard content in markup, which can break compatibility with markdown tools, or including HTML in the markdown, which seems to defeat the purpose.
Markdown translation tools all seem to have tradeoffs in configurability.
OTOH, HTML to PDF rendering tools (pandoc, weasyprint, etc.) are also often unsatisfying - complex and sometimes lacking support for various types of content and (CSS) styling.
When both HTML and PDF documents are needed, it pays to keep formatting as simple as possible, design HTML with translation to PDF in mind, and limit markdown use to smaller projects. (Week 35)
- Completed draft of TRN documentation, sent for initial review by Rock, Henthorn.
Documentation uses mkdocs with the mkdocs-print-site-plugin extension (and others) to produce HTML and PDF output from markdown, with support for embedded LaTeX and Mermaid within markdown sources.
Mkdocs is easy to use, and requires less effort than Pandoc to generate really nice HTML documentation. The documentation systems I tried that use markdown all had some issues, particularly in rendering PDF, which is often down to the rendering under the hood. Renders based on weasyprint and wkthtml didn't seem to support LaTeX well; the mkdocs-print-site plugin, which uses playwright/headless chromium, had good support, and integrated smoothly with mkdoc and other markdown extensions. (Week 36)
- editing and reviewing draft release of TRN documentation w/ Steve Rock, Rich Henthorn (Week 37)
- writing TRN example app for documentation (Week 39)
- Made a number of updates to the TRN documentation; added an installer script for the reference application. (Week 41)
- Gave Steve a copy of trn-player, a TRN reference application that can do TRN processing on log files and CSV data. (Week 41)
- Generating relocatable MacOS binaries for Steve Rock to test turned out to be a bit of a rabbit hole. The issue had to do with the linkage of third-party libraries (netcdf), which are in different locations and have different versions on the build and target machines. In addition, the library ID in the netcdf shared lib is set to an absolute (build machine) path that contains a versioned library name. The path used is baked in to the libnetcdf build, which in turn is built by MacPorts. Even when building from source, it isn't exposed in a

way I could find.

Came up with a solution using rpaths, but ultimately had to resort to post-build changing the netcdf LC_LOAD_DYLIB using install_name_tool, as I couldn't find a way to set/change it in cmake or in the netcdf build.

(Week 41)

- working with Steve Rock to test the trn-player utility (TRN reference implementation) and TRN documentation. I think we're nearing the end of feature completion, and Steve is running data sets and comparing output with the Replay tool that he's used in the past.

(Week 42)

- Continuing to test TRN reference application with Steve Rock, and updating documentation. (Week 43)
- With thanks to Carlos R, the TRN documentation initial release is now hosted on the MBARI doc site:

<https://docs.mbari.org/internal/trn-doc-md/index.html>

(Week 45)

- Thanks to Steve Rock and Rich Henthorn for their major contributions to the TRN documentation (Week 45)
- TRN CMakeLists update for libtrnav (see Seafloor mapping) (Week 51)

902504 - Scalable Semantic Mapping

- updated oculus sonar GUI and mb1stream for upcoming cruise (Week 26)

Out of Office

- 12/22-1/2 vacation
- 3/24... tentative (jury duty)
- 2-3w June? July? TBD (vacation)
- July 14-31/TBD (vacation)
- 4/1 San Jose (morning only)
- July 14-31 (vacation)
- Apr 25 (vacation)
- Jul 14-31 (vacation)
- May 20 afternoon (med appt)
- May 20 afternoon
- May 23 (vacation)
- Jul 14 - Aug 1 (vacation)
- 8/25 14:30+ medical
- 8/28 10:00-12:00 medical, Remote otherwise
- 10/17-20 vacation
- 10/27 medical (online in afternoon)
- 11/17-19 sick leave
- hiring, group lead discussions
- misc admin

- 11/20 leave 15:30
- 11/24 leave 14:30
- 11/25 WFH
- 12/5, 8, 17, 29 in/out early (tentative)

Overhead

- annual review prep (Week 2)
- misc admin (Week 2)
- HR training Providing and Receiving Feedback for supervisors, staff (Week 3)
- annual review prep (Week 3)
- met w/ Tom O re slides for Bristlecon presentation on MBARI experience with OGC PUCK standard (Week 3)
- meetings, misc admin (Week 3)
- Mostly review activities this week... (Week 4)
- review wrap up (Week 6)
- review process wrap up (Week 8)
- SE Hire process/planning (Week 9)
- Misc admin (Week 9)
- SE Hire process, misc admin (Week 10)
- hiring process planning (Week 11)
- resource request (Week 11)
- misc admin (Week 11)
- Hiring: kickoff meeting this week, planning (Week 12)
- Hiring (Week 13)
- Office move (Week 13)
- Aim to sit in on meeting w/ Louise Poubel (Week 13)
- Misc admin (Week 13)
- Office relocation (Week 14)
- TWIC renewal (San Jose) (Week 14)
- hiring: committee meeting (Week 15)
- misc admin, seminars, directors dialog, etc (Week 15)
- adventures in python: wrote utility to generate real-time multi-channel strip charts from UDP CSV data; works, but a bit slower than I'd hoped. (Week 15)
- hiring process (Week 16)
- misc admin (Week 16)
- hiring activities (Week 19)
- abstract (Week 19)
- misc admin (Week 19)
- met w/ Antje (Week 20)
- hiring process (Week 20)
- misc admin (Week 20)
- Attended abstract presentations (Week 21)
- Hiring: scheduling tech interviews (Week 21)
- Attended Chris's surprise celebration (Week 21)

- Misc admin (Week 21)
- proposal / budget prep (Week 22)
- Hiring process (Week 22)
- Misc admin (Week 22)
- hiring: internal tech interviews (Week 23)
- attended R/V David Packard events (Week 23)
- misc admin re interns, etc (Week 23)
- Hiring: scheduled a new internal tech interview for next week. (Week 24)
- Misc admin (Week 24)
- hiring: internal tech interview (Week 25)
- job description updates (Week 25)
- misc admin (Week 25)
- hiring: internal tech interviews and discussion (Week 26)
- contributing to job description updates (Week 26)
- resource requests (Week 26)
- proposal input (Week 26)
- misc admin (Week 26)
- hiring process (Week 27)
- proposals/planning (Week 27)
- job description review (Week 27)
- misc admin (Week 27)
- proposals (Week 28)
- hiring process (Week 28)
- misc admin (Week 28)
- Proposal review (Week 32)
- Hiring (scheduling interviews) (Week 32)
- Attended ML workshop (hosted by K Gomes) (Week 32)
- Misc admin (Week 32)
- Proposal review discussion (Week 33)
- Hiring: interviewing (Week 33)
- misc admin (Week 33)
- proposal review/staffing plan (Week 34)
- hiring (interviewing) (Week 34)
- misc admin (Week 34)
- hiring : scheduling interviews, planning (Week 35)
- working with Daniel in IS on windows 11 update for OASIS build machine (Week 35)
- misc admin (Week 35)
- Taking a look with Brent J at his sipper board, troubleshooting ICSP programming. (Week 36)
- Attended seminar (Week 36)
- Hiring (Week 36)
- Hyperion meeting (Week 36)
- Misc admin (Week 36)
- Proposal review, labor planning (Week 37)

- SE hiring process (Week 37)
- misc admin (Week 37)
- Hiring: interviews (SEE, omics) (Week 39)
- Proposal process (resource balancing) (Week 39)
- misc admin (Week 39)
- omics candidate interviews and input (Week 41)
- SE hiring (Week 41)
- Hyperion meeting (Week 41)
- misc admin (Week 41)
- omics interview panel feedback (Week 42)
- proposal form review (Week 42)
- misc admin (Week 42)
- hiring : interview (Week 43)
- Hyperion software meeting (Week 43)
- hiring: discussion (Week 45)
- hiring complete :o) (Week 47)
- misc admin (Week 47)
- Planning: staffing (Week 48)
- Review prep (Week 48)
- Misc overhead (Week 48)
- staffing (Week 49)
- review prep (Week 49)
- hyperion meeting (Week 49)
- misc admin (Week 49)
- staffing planning (Week 50)
- review planning (Week 50)
- reviewing job descriptions and review forms (Week 50)
- misc admin, mbwa (Week 50)
- Review prep, form review (Week 51)
- SEE Group Lunch (Week 51)
- Misc admin (Week 51)