

Carlos Rueda Sorted By Project

901502 - Ocean Soundscape

- Jupyter@gizo now uses a persistent access token. (Week 2)
- Running Google/NOAA humpback whale song detection model to complete the regular scores for 2025. Also doing some maintenance of the code and providing assistance to run the core scoring logic in the realtime workflow that Danelle is setting up. (Week 2)
- Migrated humpback-whale-song-detection to using uv as project manager (from poetry). (Week 3)
- Completed Google/NOAA humpback whale song detection scores for all our time series. Moving forward with a regular update, put in place a daily cronjob to generate the score product for the previous day. (Week 3)
- PBP: (Week 3)
 - Added a Release Notes page to the PBP documentation. (Week 3)
 - Migrated type checker from mypy to ty, which already proves its power by uncovering several issues. A future modernization update is to also migrate to uv. (Week 3)
- (From EC note being submitted by JR). The Ocean Soundscape team met with personnel from NOAA Fisheries and the NOAA Office of National Marine Sanctuaries this week. We are supporting their adoption of open source software co-developed by MBARI and a European colleague. The software processes voluminous passive acoustic monitoring data to compact standard data products, which in turn enable research for scientific and management purposes. (Week 3)
- Group meeting. (Week 7)
- New PBP release (previous one was in Nov 2025). (Week 7)
- A certain cronjob failing for the last couple days has revealed a more general issue. (Week 8)
- Meetings. Check point with John to talk about possible next tasks for the project. (Week 11)
- Internship applications review; scheduling interviews. (Week 13)
- LLM related literature review (Week 13)
- Group meeting (Week 13)
- Internship candidate interviews (Week 14)
- Experimenting with AVES for clustering humpback whale song detections (as given by the NOAA/Google model via our tool) into unit types. (Week 14)
- Experimentation with AVES, UMAP, and clustering toward characterization of humpback whale song units. Presented results to the team last week, and here's the code repo. (Week 16)
- Using sonus to continue the experimentation while taking advantage of GPU. (Week 16)

- Group discussion and prepping Oceans 2026 abstracts. (Week 17)
- A fix to the daily humpback whale detection cronjob. (Week 17)
- OCEANS 2026 abstract/coordination with co-authors (Week 18)
- Looking into exercising the clustering pipeline I recently put together also on various “olive” datasets provided by Franny O. and Jim D. (Week 18)
- Poster abstract submitted to OCEANS 2026 (Week 19)
- Clustering pipeline exercised on “olive” datasets; no definitive conclusions yet. (Week 19)
- Meetings (Week 19)
- Added PBP to <https://deepwiki.com/mbari-org/pbp> (but minimal exploration so far). (Week 23)
- Group meeting (Week 23)
- Our intern, Ariel Raizman, is making great progress with his project. (Week 25)
- Group meetings. Intern mentoring. New VM+GPU in place now (thanks IS!). (Week 26)
- Intern mentoring, discussions, etc. (Week 28)
- Our intern, Ariel Raizman, continues making good progress on his project. (Week 29)
- Group meeting, with external collaborators, and updates. (Week 29)

901513 - Targeted Sampling by AUVs

- Tentative plans for patch tracking by mid March. (Week 7)
- Possibly looking into a tracking exercise in the near future (Week 19)
- In preparation for an upcoming chl tracking, doing additional code adjustments on top of a very significant refactoring started months ago, so we can run in on the smc-2 target. With John’s help, determining a good area for the operations. (Week 20)
- A successful chlorophyll patch tracking experiment has been completed. The program ran autonomously on the wave glider for three full days without any intervention. We still need to inspect the logs, data, and contextual information for a more detailed assessment. (See also Yanwu’s board bullet.) (Week 22)

901809 - Deep Sea Bioinspiration

902101 - LRAUV Technology Development

- TethysL 4.8.2, Dash4 4.97.1, TethysDash 4.99.22. (Week 2)
- Submitted PR in lrauv-application to install tethysl from the linux standalone release instead of the release that requires java on the system. (Week 2)
- Group meeting. (Week 3)
- Dealing with an issue involving the service behind the dash4 TrackDB feature (which allows the display of other assets on the map, besides the LRAUVs). Dash4 settings that determine the time window for display may be involved when such a window is

rather large, which may also happen when selecting a long playback time range. (Week 3)

- TethysL 4.8.4. (Week 4)
- A significant TethysL 4.9.0 release, with enhanced parsing of all relevant C++ LRAUV sources. This already reveals issues in a number of missions, but they are flagged as warnings instead of errors to avoid disrupting current makefiles and build scripts while the missions can be fixed. (Week 5)
- Exchanges with WHOI regarding their dash configuration. (Week 5)
- Saab wants to resume dash discussions; meeting tomorrow 1/29. (Week 5)
- TethysDash: Working on a couple of the ~15 endpoints still to be migrated to Jakarta EE. (Week 7)
- Troubleshooted LRAUV-TethysDash http comms issues, which ended up caused by some apache misconfig of my own making! (Week 8)
- TethysDash backend modernization: 8 more endpoints migrated to Quarkus JAX-RS. (Week 8)
- Saab: Weekly meeting (Terry Ward, Tim Powel). Terry is still working on setting up an Amazon EC2 instance. (Week 8)
- The recent tethysdash2 OS patch (which seems to have also involved a docker update), triggered the need to update the Watchtower service (used for continuous deployment of several TethysDash related containers). (Week 8)
- TethysDash backend: The recent LRAUV operations have exposed some unexpected regressions arising from the several significant internal changes done over the last few weeks. Two endpoints in particular will need additional revision. For now, I enabled the previous version of such endpoints, and all seems stable now. Also, a long standing bug with the resyncing of the LRAUV config and mission clones seems to have been fixed. (Week 11)
- Saab: Some additional meetings with Saab these last couple of weeks. A functional TethysDash instance is now in place on an EC2 instance. We've tested incoming and outgoing email functionality. Also, we tested HTTP connection with a sim running on an MBARI server, and also with an old sim they have on their side. Some of the next steps for them include enabling HTTPS access and setting up and testing Iridium comms (i.e., emailing) with an LRAUV, probably a sim (but not sure if possible) and real vehicles. (Week 11)
- WHOI: A brief exchange with them regarding KML display in dash4, and possible alternatives (e.g, tile layers). It seems they've been using a KML file satisfactorily. (Week 11)
- AI prototyping (LRAUV operations assistant using RAG), and discussion (slides) with Quinn S. and Kevin G. Next steps include reconnecting with AWS GenAI folks toward a POC. (Week 13)
- SE interviews (Week 13)
- Added more file formats for ingestion in the Tethys RAG prototype using Docling. Also started adding a provenance mechanism in a way that responses to the user include references to relevant materials. (Week 14)

- On 2026-04-10 afternoon, incoming email handling in TethysDash got broken due to the expiration of the M365 client secret. Thanks again to all of you who helped diagnose and fix the issue, in particular, Andrew M., for setting up a fresh secret. To help prevent this from happening again, TethysDash 4.99.47, implements a mechanism to notify admins when the client secret is nearing expiration. Andrew tells me he will also be implementing “a script that will query applications in M365 for tokens or certs that are expiring and send notifications”. (Week 16)
- Dash4 is now 4.98.7. (Thanks, Steve, for the suggestion.) (Week 16)
- Dash4 4.98.8, including fix to regression reported by Monique. (Week 17)
- Looking into expanding the TethysAI prototype a bit, while also incorporating preliminary MCP services in the TethysDash backend. (Week 17)
- Assisted Karen to fix docker compose issues and diagnosing email notification problems related to dash5. (Week 17)
- TethysAI: Started adding MCP capability to the prototype, and is looking very good. (Week 18)
- TethysDash 4.99.50: Fixed a regression revealed with the WHOI instance upon upgrading to the latest version. The regression was related to the traditional user authentication system. Also coordinated with Karen as that's the system dash5 uses. (Week 18)
- TethysL now 4.9.4, bringing resiliency, in particular for the VS Code extension, when trying to parse C++ sources with errors like a missing #include'd header, as recently noted by Yanwu. (Week 18)
- TethysDash: Again exercising two modernized endpoints that are still pending to declare as fully completed (some issues manifested a few weeks ago, but probably for unrelated reasons). (Week 19)
- TethysDash API: new OpenAPI spec (completely auto generated) is now almost complete, that is, wrt legacy version; but still with several possible future enhancements. (Week 19)
- TethysDash (Week 20)
 - 4.99.60 with enhanced observability for various metrics using Prometheus. Along with that, enabled visualizations using Grafana and other tools, and overhauled the TethysDash System Ops documentation, including links to various viz pages (for example, this). (Week 20)
 - 4.99.61 with adjustment in resulting chartData2.json to fix the occasional issue of malformed floating point values from the LRAUV. Thanks Karen S. for reporting and Paul R. for the feedback re planktivore. (Week 20)
 - Started looking into improving the websocket endpoint. (Week 20)
- The recently implemented more secure websocket endpoint in the TethysDash backend has been satisfactorily tested/verified in operations during the last several days. (Week 22)
- Dash4 4.99.21. (Week 22)
- TethysDash/dash4: Implementing SMS as an option for alert notifications to users. AWS SNS setup as well as code are close to being in good shape for initial testing. (Week 23)

- Tethys-AI: With Kevin G. and Quinn S., met with AWS GenAI Innovation Center to discuss LRAUV related use cases for a POC system with them. I demoed the Tethys-AI MCP/RAG prototype. (Week 23)
- TethysDash/unserialize: spending a lot of time trying to diagnose errors that have become more visible for WHOI in recent weeks. The logs show multiple unserialize invocations failing, which are due to incomplete or corrupted data from the vehicle, but it's still unclear where or how this happens. Upon inspecting the so-called email-logs, they also have been happening in our MBARI instance for months (Opah in particular), but apparently unnoticed externally, or not reported. (Week 23)
- SMS notifications support is now in place, but still considered beta status while we get a better sense of usage and cost, and possibly needing backend / AWS account adjustments. (Week 25)
- Lots of internal code cleanup/refactoring, plus additional migrations of endpoints from servlets to JAX-RS. The changes have been exercised during actual vehicle operations. Only one regression (exposed in dash5) related with CORS headers in one endpoint was noted and quickly fixed. Other "impacts" on dash5 were due to more strict parameter validation (fixed in dash5 itself). (Week 25)
- TethysL now 4.9.72 with enhancements and fixes and latest LRAUV definitions. (Week 26)
- Mission documentation updates, including a fix to the tethysl pygments lexer for syntax highlighting. (Week 26)
- TethysDash 4.99.82: Important maintenance release, plus API documentation fixes. (Week 26)
- TethysDash 4.99.80: With Claude's assistance, reviewed and merged PR#74; thanks Karen Salamy and Claude for the contribution. (Week 26)
- TethysDash: Addressing issues reported by Monique, one now fixed, the other being investigated. (Week 27)
- TethysDash / Dash4: Implemented new verification code step when adding/editing recipient (phone number or email address) for event notifications. (The verification code is for now not forced by the backend while dash5 can also incorporate the step.) (Week 28)
- TethysDash modernization: Started using Jdbi/Flyway as database access mechanism. (Week 28)
- Updating documentation of the MBARI TethysDash system. (Week 28)
- TethysDash Intro meeting with Emme. (Week 28)
- TethysDash: database access modernization on Jdbi/Flyway continues. (Week 29)
 - Production instance now on 4.99.87. (Week 29)
 - Staging instance (tethystest) with various additional migrations in development, which are looking good, but still under testing given the many very significant changes to make sure no regressions will occur when deploying into production, in particular when considering upgrades for installations out there (WHOI, Saab). (Week 29)

902504 - Scalable Semantic Mapping

- Migrated Dial backend to using uv as project manager (from poetry). (Week 3)
- Check-in with Sebastián to delineate overall plans and some next tasks. (Week 4)
- More Dial internal code cleanup/upgrades. (Week 4)
- Dial UX: Completed Vuefinder based feature to navigate and interact with the file share. (Week 5)
- Dial 1.9.94. (Week 7)
- CoMPAS expedition past Friday went well, including Dial use (I'm told). (Week 8)
- Meetings; new Dial feature requests. (Week 8)
- Focused work on Dial these days, with various versions released and enhancements including the display of real-time geo-located detection markers on the map. (Week 11)
- Dial use in recent expeditions: (Week 13)
 - "Dial was fundamental for planning and launching missions" (Week 13)
 - Real-time detections successfully exercised (Week 13)
- Per some meetings/discussions, added various Dial tasks in Notion. (Week 13)
- Dial maintenance release (quasar upgrade for the frontend) (Week 14)
- Dial: Various versions during that last several days, now 2.2.5. Enhancements / fixes include: auto sync of markers across multiple frontend instances; file browser adjustments; simplified view (to facilitate use by non-operator users, while still allowing some functions like creating/editing markers); dependabot updates; Quasar upgrade. (Week 16)
- New Dial versions 2.2.6, 2.2.7, with various enhancements, in particular with a significantly improved backend-frontend async notification mechanism. (Week 17)
- Dial 2.2.8. (Week 18)
- Some assistance to Dial users. (Week 19)
- Brief discussion with Sebastián to delineate next Dial priorities. (Week 20)
- Dial now 2.3.0, with ability to report the depth at given positions. This is supported by a bathymetry/topography grid (an mbgrid/GMT HDF5 .grd file), whose location is to be indicated in the deployment file. Initially, depth is only reported as part of the map context menu, but it will also be incorporated in other features (measure tool, planning tool, etc.) (Week 22)
- Dial 2.3.3. (Week 23)
- Dial: various enhancements. (Week 25)
- 2027 proposal discussions, and planning for rest of 2026. (Week 25)

Out of Office

- Jan 2–5: vacation
- Jan 16: vacation
- Feb 24 morning: family business

- April 1-2: Drs. appt, plus vacation
- May 8, 22: vacation
- June 29-30 (tentative) - vacation (family reunion in Miami)
- June 29-30 (tentative) - vacation (family reunion in Florida)
- June 29-30 vacation
- May 19 AM: Drs appt.
- May 22: vacation
- July 13-14: medical leave
- Sept 8-11: vacation
- Sept 21-24 (1-2 days) IEEE Oceans Conference.
- Nov 11-12: vacation
- Dec 9-10: vacation

Overhead

- Migration of tethysdash2 from CentOS 7 to Ubuntu completed, and all should be in place for when LRAUV operations resume. (Week 2)
- Updated various entries at <https://docs.mbari.org/internal/se-ie-doc/systems/se-ie-servers/> (Week 2)
- IE group meeting. (Week 3)
- Performance review tasks (Week 4)
- Postdoc applications evaluation. (Week 5)
- Annual performance review. (Week 5)
- IE group mtg. (Week 5)
- Issues with recent Thalassa maintenance. (Week 7)
- Compensation presentation (Week 8)
- IE group meeting / brown bag (Week 13)
- Internship candidate interviews, selection. (Week 16)
- Moved to my new OFFICE: A115. (Week 16)
- Dependabot alerts/PR merges in a few projects. (Week 17)
- Attended some abstract presentations. (Week 19)
- Started modernizing our docs service by allowing (for now, in an opt-in fashion) the use of Zensical as documentation generator instead of MkDocs. Initial testing, no documentation yet; stay tuned. (Week 19)
- Added a Zensical section to our docs meta-documentation. Thanks Kevin B., Brian S. for your initial exercising of this generator in a few sites already! (Week 20)
- Input to proposals (Week 26)
- Reported a Quarkus issue and submitted a PR. (Week 26)
- Upon notice from IOOS about an unresolvable vocabulary, restored the services behind <https://mmisw.org/ont/>. (BTW, some discussions are going on about the future sustainability of these ORR instances, including ESIP COR.) (Week 28)
- Proposal related feedback. (Week 29)