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# **FY23 Ecosystem Management and Restoration Research Program**

# **Project Record**

The Project Record is a living document – analogous to the Decision Management Plan used in the Corps Planning process. The Project Record is to be developed in parallel with the initial work unit documentation, and then updated 2 times per FY, in preparation for the IPR and RARG reviews, with the expenditure plan for the subsequent year being updated at the end of the FY. The purpose of the Project Record is multi-fold: 1) to serve as a tool for the researcher and program manager, informing the scheduling and smooth progression of the work, and documenting significant decisions or issues affecting the focus or outcome of the work, 2) to provide tracking and program accountability for project milestones and deliverables, 3) to document important achievements not part of the original work unit proposal and 4) to provide a communication plan of the value of the work through factsheets, videos, webinars, podcasts, social media (ERDC, District, other accounts), photos for EMRRP website, etc. List 1 item per quarter of each FY (4 per FY).

# Project Title:Development of New Capabilities and Enhancements to the USACE Two-Dimensional Reservoir Water Quality Model (CE-QUAL-W2)

# Reference SON: **Number and Title:** SON ENV 1174: Development of New Capabilities and Enhancements to the USACE Two-Dimensional Reservoir Water Quality Model (CE-QUAL-W2)

# **Lead PI:** Todd Steissberg

# Date of Update:October 4, 2022

# **Deliverables (include CW weekly submissions, videos, podcasts, social media posts, etc.)**

| Work Unit Major Tasks and Deliverables | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Task/Product** | **Milestones** | | **Status** | | **Remarks** |
| **Original Specified Delivery Date** | **Project Year** | **Percent Completion** | **Anticipated Delivery Date** |
| **(Qtr/FY)** | **(1,2,..n)** | **(%)** | **(Qtr/FY)** |
| 1. CE-QUAL-W2 Version 4.3 | Q2/FY21 | 1 | 100 | Q2/FY21 | * Initiated work on CESU in FY21 |
| 2. CE-QUAL-W2 Version 5.0 Alpha | Q2/FY22 | 2 | 50 | Q2/FY22 | * Initiated work on CESU in FY21 |
| 3a. Python Framework  3b. Prototype Jupyter Notebook  3c. Plotting Capability | Q1/FY21  Q1/FY21  Q1/FY21 | 2  2  2 | 100  100  100 | Q3/FY21  Q3/FY21  Q3/FY21 | * Started work in FY20 * Started work in FY20 * Started work in FY20 |
|  |  |  |  |  |  |
| 4. CE-QUAL-W2 Operations Capability | Q4/FY21 | 2 | 50 | Q4/FY21 | * None |
| 5. CE-QUAL-W2 Version 5.0 Beta | Q2/FY23 | 3 | 0 | Q4/FY21 | * None |
| 6a. CE-QUAL-W2 Version 5.0 Final  6b. User's Manual  6c. Technical Reference Manual  6d. Webinar  6e. Technical Note | Q4/FY23  Q4/FY23  Q4/FY23  Q4/FY23  Q4/FY23 | 3 | 0  75  75  0  0 | Q4/FY23  Q4/FY23  Q4/FY23  Q4/FY23  Q4/FY23 | * None |

# **Deviations**

| Significant Changes of Plan, Delays, Problems | | |
| --- | --- | --- |
| **Task/Product/Goals** | **Description of Change** | **Remarks/Justification/Impacts** |
|
|  |
| Task 6. CE-QUAL-W2 v5.0 final version with documentation | Some development delayed to FY23. FY23 workshop moved to FY22. | The Numerical Model Maintenance program required creation of a new workshop in FY23. Therefore, some development was delayed until FY23, while the one-day workshop planned for FY22 was moved to FY22 and significantly expanded to a three-day workshop. This workshop will be updated for CE-QUAL-W2 V5.0 in FY23 and delivered at Walla Wall District.  A brief one-day workshop is also being developed, which will be presented at the AWRA conference in Seattle, WA in November, 2022. This will be updated for V5.0 and presented in September 2023. |
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# **Other Achievements**

| Big Wins/Other Significant Activities | | |
| --- | --- | --- |
| **Description** | **Qtr/FY** | **Remarks/Impacts** |
| Delivery and instruction of CE-QUAL-W2 Water Quality Modeling Workshop | Q4/22 | A three-day CE-QUAL-W2 Water Quality Modeling Workshop was prepared and delivered at ERDC, Vicksburg, MS in August 2022. 45 students registered, representing 20 offices/organizations. 16 USACE offices participated. |
| Nashville District requested upgrades and model simulations for their eight CE-QUAL-W2 models. | Q4/22 | During the CE-QUAL-W2 workshop, Nashville District requested upgrades and model simulations for their eight CE-QUAL-W2 models. |
| Philadelphia District CE-QUAL-W2 modeling study | Q4/22 | Philadelphia District is funding a multi-year CE-QUAL-W2 study. This involves upgrading their five CE-QUAL-W2 models of the Lehigh River basin, preparing models to simulate baseline and up to four alternative operating conditions, and performing multiple scenario simulations, analyzing the water quality, and summarizing the findings in a technical report. |
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# **~~Obligations and Expenditures~~ This is now documented in 2101s.**

# **(Optional) Mini-Project Management Plan**

The purpose of a Mini-PMP is to ensure active and effective ENGAGEMENT with the ERARG and appointed CoP lead, throughout the life of a project, enabling them to provide input to the direction of the work as it progresses and to the ongoing development of written products. A suggested format is provided below.

Subject to their interest and availability, ERARG members should have the opportunity to participate in regular project meetings/conference calls and to contribute to and/or review deliverables before they reach their final form. This will typically involve the ERARG member who acts as the proponent for a SON, or their designee, but may also include the submitter of the original SON and/or other ERARG members with relevant expertise and a specific interest in the project.

The Mini-PMP is a very simple framework of project-specific tasks/activities that should be developed with input and concurrence from the aforementioned ERARG members, delineating their specific contribution to the project and opportunities for involvement.

The Mini-PMP is not intended to be a comprehensive project planning document outlining the responsibilities of every member of the research team – although that level of planning should take place as part an ongoing project formulation process. It will be sufficient to focus the Mini-PMP to the agreed upon roles and responsibilities of the R&D Team as a group, and the individual ERARG and CoP members who will be directly involved with the project, recognizing that this may also evolve over time, necessitating updates to the PMP as the project progresses.

An example is provided; you may modify with tasks and activities relevant to your project, and expand or simplify as appropriate. The mini-PMP is intended to clearly delineate respective team roles and expectations. Like the Project Record itself, it may be necessary to make adjustments as work progresses and team makeup changes.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Mini-Project Management Plan (Example)** | | | | | | | |
| Task/Activity | Who | Org Element | Estimated Level of Effort | | | Approximate Execution Timeline | |
| Frequency | Hours | Total Man Days | FY/Qtr | Target Dates |
| Project PDT Kickoff Meeting | All PDT | All | N/A | 2 |  | FY18/2nd Qtr |  |
| Project PDT Progress Meetings | All ERDC/HEC PDT | All | BiWeekly | 2 | 9 | Ongoing |  |
|  | ERARG PDT Member | NAD | Quarterly | 2 | 3 | Ongoing |  |
|  |  |  |  |  |  |  |  |
| Literature Search | ERDC PDT | EEW/EPE | Ongoing | 80 | 10 | FY/2nd Qtr | 1-Feb thru 28 Feb |
|  |  |  |  |  |  |  |  |
| Outline – Technical Report | ERDC PDT | EEW/EPE | N/A | 40 | 5 | FY18/2nd Qtr | 1-Mar |
|  | HEC PDT | IWR | N/A | 40 | 5 |
|  | ERARG PDT Member | NAD | Initial | 2 | .25 |
|  |  |  |  |  |  |  |  |
| Preliminary Draft – Technical Report | ERDC PDT | EEW/EPE | N/A | 80 | 10 | FY19/2nd Qtr | 31-Dec |
|  | HEC PDT | IWR | N/A | 40 | 5 |
| Internal Review – Technical Report | ERDC PDT | EEW/EPE | N/A | 6 | .75 | FY19/2nd Qtr | 15-Feb |
|  | HEC PDT | IWR | N/A | 6 | .75 | FY19/2nd Qtr | 15-Feb |
|  | ERARG PDT Member | NAD | N/A | 2 | .25 | FY19/2nd Qtr | 28-Feb |
|  |  |  |  |  |  |  |  |
| Document Revision – Technical Report | ERDC PDT | EEW/EPE | N/A | 40 | 5 | FY19/2nd Qtr | 31-Mar |
|  |  |  |  |  |  |  |  |
| Formal Peer Review – Literature Search TR | Selected ERDC/HEC | TBD | N/A | 8 | 1 | FY19/3rd Qtr | 30-May |
|  |  |  |  |  |  |  |  |
| Final Document Revisions | ERDC PDT | EEW/EPE | N/A | 10 | 1.25 | FY19/3rd Qtr | 30-Jun |
|  | HEC PDT | IWR | N/A | 2 | .25 |
|  | ERARG PDT Member | NAD | N/A | 2 | .25 | FY19/4th Qtr | 15-Jul |
| Check of Edit | ERDC PDT | EEW/EPE | N/A | 2 | .25 | FY19/4th Qtr | 15-Sep |