Interdisciplinary Team Meeting

2026-03-11 (Wednesday) 0900 – 1600

Location: Virtual

Note Takers:

1. Microsoft Teams transcript processed by AI (recording started mid-way through first agenda topic) and edited by Eric Peterson

Attendance: Eric Peterson (TRRP/USBR), Oliver Rogers(TRRP/USBR), Smokey Pittman (HVT/ARS), Kurt Fausch (SAB), Trevor Morgan (CDWR), Ken Lindke (CDFW), Seth Naman (NMFS), Patrick Flynn (TC), Kiana Abel (TRRP/USBR), Morgan Knechtle (CDFW), Chris Laskodi (YT), Mike Dixon (TRRP/USBR), Justin Alvarez (HVT), Steve Gaugh (USFWS), Trevor Morgan (CDWR), Roy Ulibarri (USFWS), Amelia Fleitz (USFS). Not all participated for the full meeting.

Action Items:

1. Peterson: Coordinate with CVO to obtain approval and operational details for implementing diurnal flow variability in spring hydrographs, including potential for 25 CFS gate changes.
2. Peterson/Naman: craft daily snowmelt fluctuations in spring hydrographs, contingent on CVO approval.
3. Peterson: Arrange a seminar or presentation by Mark Shirelle (or a recommended expert) on state space modeling and its application to integrating multiple salmon population datasets for the program.
4. Lindke/Peterson: provide Environmental Flow Study document and proposals for review.
5. Peterson: schedule May meeting to prioritize FY27 Science Proposals.

Agenda: Flow Recommendations

Flynn presented the Flow Workgroup's recommendations for spring flow releases in Water Year 2026. The group had detailed discussion on the comparison of Decision Support System (DSS) models for river flow management. Participants noted that the current decision space is narrow, leading to minimal contrast between hydrograph models. The group acknowledged that the hydrographs being compared are identical in volume and

nearly identical for timing. This limited variability restricts the ability to discern significant differences in ecological outcomes.

Key Points:

- The group encouraged revisiting comparisons with the "rod hydrograph" and potentially a naturalized hydrograph to contextualize progress and management improvements.
- Sensitivity analyses for fish models (notably S3) were discussed, with suggestions to test varying consumption rates and scenarios with higher spawner densities to explore density-dependent effects.
- Ongoing efforts to add variable consumption rates to the S3 model were highlighted, with funding being sought for this enhancement.
- **Group achieved consensus to forward the Flow Workgroup's recommendation to the TMC.**
- Group discussed the potential for implementing daily snowmelt-driven flow fluctuations in spring hydrographs, the operational challenges, and the need for collaboration to help design the hydrograph if approved.
    - CVO is reviewing the proposal for daily flow fluctuations, with current plans for small (50 CFS) changes, but larger (up to 300 CFS) fluctuations would require more effort and have not yet been approved.
    - Daily fluctuations should be water volume neutral, as they only redistribute flow within the daily mean. Todd's guidance paper on adaptive rules for daily fluctuations based on snowpack, ensuring the approach is flexible and responsive to actual conditions.
    - Group supported the idea of implementing diurnal variability.

Agenda: Augmentation Recommendations

Pitman presented the Physical Workgroup's recommendation for sediment and the recommendation for co-augmentation of wood made in collaboration with the Riparian and Aquatic Ecology Workgroup. Augmentation is at the Steel Bridge site (first use of this site).

- **Site Selection and Gravel Placement:** Pitman described the decision to focus augmentation efforts on the Steel Bridge day use site, proposing the

placement of 2000 cubic yards of gravel and outlining expected community impacts and outreach efforts.

- **Large Wood Addition Experiment:** Pitman and Lee detailed plans to add 6–8 trees from BLM hazard removal to the river, selecting trees with canopy branches remaining for habitat value.
- **Monitoring and Modeling Recommendations:** Pitman emphasized the need for improved sediment augmentation monitoring, including drone flights and physical surveys, and advocated for a more rigorous monitoring plan to inform future decisions.
- **Community and Landowner Engagement:** Abel suggested integrating landowner communications for future wood augmentation, especially for sites like Trinity House Gulch, and the importance of including adjacent landowners in planning.

Agenda: TMC meeting preparations

- The group reviewed the draft agenda and workgroup reports.
- Workgroup reports are available in the Executive Director's report for the March TMC meeting.

Agenda: Discussion of SAB field visit memo

Discussed feedback from the Science Advisory Board (SAB) field visit, focusing on conceptual modeling of foodscape and temperature, state-space modeling for population estimates, and the value of natural hydrographs versus functional objectives.

- SAB recommendations to integrate foodscape and temperature relationships into the S3 model, with ongoing efforts to add variable consumption and improve flow-to-food modeling.
- **State Space Modeling for Population Estimates:** SAB guidance to use state space models for adult and juvenile salmon population estimates, integrating multiple data sources and considering geographic nodes and survival rates. **Peterson to seek presentation from Mark Shirelle on state space modeling.**
- **Natural Hydrograph Versus Functional Objectives:** Discussion reflected on SAB comments about not assuming natural is always best, emphasizing the need to focus on ecological functions and referencing literature supporting the natural flow regime as a guiding principle.

Agenda: 2027 Topographic Model

Discussion of the upcoming 2027 topographic model, its budget implications, and new grain size mapping technologies. Peterson outlined the five-year cycle for topographic modeling, its foundational role in habitat and flow modeling, and the anticipated $560,000+ budget requirement for the 2027 update. Point was made that funding should be balanced between implementation and science. Project has importance for supporting Environmental Flow Study.

Pitman presented advances in grain size mapping using AI algorithms and multibeam sonar, describing how these methods can improve accuracy and efficiency over traditional pebble counts. Physical Workgroup is seeking a low-cost pilot study to compare AI-based grain size mapping with existing methods, using both drone and underwater imagery to calibrate and validate the approach.

Agenda: Environmental Flow Evaluation

Lindke explained that the Environmental Flow Evaluation (or Study) is in its second year of a three-year implementation, originating from the winter variable flow rule set. The study plan was developed to assess the effects of changes in flow management, as originally intended by the authors of the winter flow report. Lindke described a two-phase process: first, gathering and refining hypotheses from programmatic documents and brainstorming, resulting in an initial list of 104 hypotheses narrowed down to 43 through SMART criteria and subject organization. The team used a scoring system based on professional judgment and the Fibonacci sequence to prioritize hypotheses, considering factors such as measurability, relevance, existing data, and programmatic uncertainties. Subject matter experts scored hypotheses by discipline, and the group finalized a subset for study plan development.

The group has identified hypotheses lacking sufficient data or models, prompting the development of proposals for FY27 to address these gaps. These proposals will be reviewed by the TMC in June, with associated study plan development and a draft report for SAB and program review. The group plans to complete the study plan before FY28, when data analysis will begin.

Agenda: Monitoring and Modeling Reviews

The IDT split 28 identified topics among work groups for review, including monitoring items and decision support system models. Some topics were assigned secondary advisory groups, and the reviews aimed to inform recommendations for the FY27 science plan. These have been assembled for SAB review by mid-April, an IDT meeting in early May, and final recommendations to the TMC in June regarding funding adjustments.

The group discussed recommendations for various monitoring activities, such as dropping the near-infrared band from aerial photography, simplifying large wood surveys, and deferring some actions pending ongoing management plans. Funding needs and prioritization for FY27 were considered for each recommendation.

- Discussions included recommendations for S3 and RBM 10 models, such as expanding submodels, improving GUIs, and shifting interfaces. The group also addressed the need for continued BMI and growth studies to support model development.
- Participants discussed recommendations and challenges related to fish monitoring, sampling design, survival studies, and the use of technologies such as rotary screw traps, sonar, and video.
- The group addressed complications with the Willow Creek Weir, recommendations to stabilize its location, and the potential for external review of sampling design and state space modeling. A need was noted for outside expertise and suggested initiating discussions within the fish work group.
- Discussion of the value of maintaining two rotary screw trap sites versus focusing on robust survival estimates using acoustic tags. Alvarez explained limitations in tagging smaller fish and the distinction between abundance and survival data.
- The group discussed data gaps, particularly below Willow Creek and in early life stages, and the importance of delinquent reporting.
- Some proposed engaging a contractor to guide the fish work group through options and pros/cons of different sampling strategies, aiming for actionable recommendations and improved decision-making.
- Group discussed recommendations for physical monitoring, sediment transport, hydrophone calibration, and sediment augmentation, focusing on prioritization and proposal development for FY27 and FY28.

- Recommendations included adding turbidity and temperature sensors at specified locations, with cost estimates and staffing considerations. The group supported defunding the Burn Ranch gauge due to limited program use.
- The physical work group responded favorably to adopting multibeam sonar for grain size mapping, proposing a phased approach starting with a river segment in FY27.
- The group discussed the need to evaluate the value of bed load quantification versus other metrics, recommending further review by the physical work group before investing in calibration data collection.
- Pittman highlighted the need for a study plan and site-specific objectives for sediment augmentation monitoring, with a proposal targeted for mid-April to align with environmental flow evaluation timelines.
- Recommendations for riparian vegetation mapping, targets model documentation, encroachment risk monitoring, and validation of the Foothill yellow legged frog population model.
- The group recommended documenting the targets model and considering a two-dimensional version for DSS, with potential cost implications and the need for additional species coverage.
- Recommendation to restart encroachment risk monitoring, possibly on a five-year cycle, and to have the riparian and aquatic ecology work group evaluate the appropriate interval.
- The group discussed the need for validation data for the frog population model, suggesting the work group identify the most valuable parts for validation and develop a proposal for FY28.
- ***See attached spreadsheet summary of recommendation disposition. This spreadsheet is to be refined and prioritized during the May meeting.***

Agenda: Limiting Factors Analysis schedule

Group discussed scheduling for upcoming meetings and workshops:

  - A meeting in early May to finalize prioritization of work, with a Doodle poll to determine availability.

- **Life Cycle Modeling Workshop:** schedule shifted to June 23rd in Weaverville, to accommodate a float for Cal Poly Humboldt Field course the following day.
- **Limiting Factors Review Discussion:** The lifecycle modeling workshop was The July 15th limiting factors analysis meeting was planned as a four-hour virtual session to maximize interaction and feedback.

Adjourned 15:30