

CRAM Technical Bulletin Update
Outline – Draft – April 2018

Overall Objectives of the Bulletin

- A. Focus on appropriate and inappropriate technical uses
 - B. Regulatory applications that may deviate from “typical” CRAM uses
 - C. Sample applications
-
- ✓ Avoid guidance on regulatory decisions, e.g. how to set mitigation ratios
 - ✓ Remove a lot of the background material that is now covered in other documents – just reference other documents and resources and focus on key technical issues
 - ✓ Organize document around issues/concerns
 - Reorganize to facilitate use by regulatory agency staff
 - Add an executive summary
 - Include pertinent examples

Topics/Issues

General Considerations and Information

- Purpose of document and target audience
- What do CRAM scores mean?
- Summary of different wetland types that are vs. are not covered by CRAM – refer to web site
 - Pay attention to existence of a module and the phase of development
- Possibility of additional review by non-regulatory agencies (e.g. Forest Service, BLM, NRCS)
- Update precision/accuracy information
- Prohibition on modifying or parsing method
- Minimum requirements for reporting CRAM scores, including QA – Reference QA document
 - QA process and what data quality documentation is necessary
 - Preference for eCRAM and uploading scores
 - training and number of practitioners
 - peer reviews
- CRAM data management via eCRAM and use of web services (e.g. EcoAtlas, Portals, SWAMP data viewer)
- Relationship of CRAM to L1 and L3 – reference other documents and sources
- CWMW and L2 oversight of CRAM
- **Inappropriate uses**

Size of Assessment Area

- Relationship of AA to jurisdictional areas
 - Assessing uplands

- Functional aquatic areas that may not be jurisdictional (e.g. riparian)
- Assessing small projects that are smaller than the minimum AA size
 - Linear projects and road crossings
- Assessing large projects with multiple AAs
 - How many AA's are necessary for a given site
 - Averaging or aggregating AA's across a large site → how to produce a single score
 - How to assess large systems that may include different wetland types?

Timing and Changes over Time

- Seasonality considerations
- **What to do if a wetland changes type during long-term monitoring**
- **How to handle intentional type conversion (due to the restoration)**
- **How to handle natural succession or changes due to episodic events**
- How to assess CRAM time series and trends
- What to do when CRAM modules are updated

Interpretation and Analysis

- Reference Sites and Contextualizing CRAM Scores
 - Role of reference network and selecting reference sites
 - How to identify/select reference sites for CRAM
 - Role of regional reference/performance curves
 - Using ambient condition and CDF's to provide context
- **How to compare CRAM scores across different modules/wetland types**
- Consideration of CRAM precision when evaluating change over time or when comparing different wetlands – signal:noise issues
 - Precision over time vs. variability over time; sensitivity relative to expected change
- Interpretation of index vs. attributes vs. metrics; ways to use each level
 - Disaggregation of index scores to attributes → metrics - implications for precision
- **What are appropriate statistics to run on CRAM scores**
 - **Multiplying index scores by areas**
- Projecting/forecasting future CRAM scores
 - Reasonable assumptions
- **Binning of CRAM scores into condition classes**
 - **Setting cutoffs and thresholds (see section on Reference and Context)**

Sample Applications/Case Studies

- Using CRAM in performance standards and tracking
- **Role CRAM can play in setting mitigation site credits**
 - **Special considerations for mitigation banks**
- Using CRAM to information mitigation/restoration site selection and design
- Application of CRAM in watershed profiles/watershed analysis
- Alternative analyses

Relevant Examples

EcoAtlas output to help illustrate case study examples

Provide sample applications for

- Mitigation banks
- Watershed profiles/plans
- Linear projects

Include a matrix that defines topics of concern for sample applications and different steps of the regulatory process (e.g. alternatives analysis, mitigation site selection, performance assessment)