Initial Deployment of the Tribal Data Management Maturity (DMM) Model

Tom K Iverson Natural Resource Consulting (971) 221-8561

April 14, 2021
Development of a Tribal Data Management Maturity Model

- Need for Metrics to evaluate efficacy of data management
- CTUIR Data Management Maturity Model
- ITMD Pilot Project – data maturity calculator
- Capability Maturity Model Integration (CMMI) - Data Management Maturity Model
- ITMD Tribal Data Management Maturity Model
Dataset Drivers

• Dataset Planning
  • 1) Dataset Administration
  • 2) Dataset Governance
  • 3) Dataset Funding Certainty

• Collect/Create Data
  • 4) Dataset Data Collection Methods/Protocol (standards)
  • 5) Dataset Data Collection (technology)

• Data Cleansing/Quality
  • 6) Dataset QA/QC Processes

• Data Analysis and Reporting
  • 7) Dataset Reporting/Publishing
  • 8) Dataset Access

• Data Archiving
  • 9) Dataset Metadata
  • 10) Dataset Storage

• Adaptive Management
  • 11) Dataset Life Cycle Management
Data System Drivers

- Data System Planning
  - 1) Data System Data Management Strategy
  - 2) Data System Governance
  - 3) Data System Funding Certainty
- Data Cleansing/Quality
  - 4) Data System QA/QC Processes
- Data Analysis and Reporting
  - 5) Data System Reporting/Publishing
  - 6) Data System Access
- Data Archiving
  - 7) Data System Metadata Management
  - 8) Data System Dataset Storage
- Adaptive Management
  - 9) Data System Life Cycle Management
  - 10) Data System Data Management Maturity Status
  - 11) Data System Coordination
Datasets for Review

- Each tribe and CRITFC identified several datasets to review
- The data sets are generally a priority for the tribes or the region
- The ITMD data stewards have some influence over the data sets
- The data sets provide some indication of the data system in which they are managed
- Chosen data sets should be long-term to support tracking as indicators for improved system maturity
## Yakama

*(Bill Bosch and Michelle Steg-Geltner)*

<table>
<thead>
<tr>
<th>Data Set Name</th>
<th>Average Data Set Maturity Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prosser Adult Counting</td>
<td>3.0</td>
</tr>
<tr>
<td>Prosser Adult Sampling</td>
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</tr>
<tr>
<td>Roza Adult Counting</td>
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<tr>
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<tr>
<td>Yakima Basin juvenile PIT operations</td>
<td>4.1</td>
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<tr>
<td>Prosser Steelhead Kelt (RTR)</td>
<td>4.1</td>
</tr>
<tr>
<td>Levi George spawn time sampling</td>
<td>2.6</td>
</tr>
<tr>
<td>Levi George juvenile sampling</td>
<td>2.6</td>
</tr>
<tr>
<td>Prosser juvenile sampling</td>
<td>2.5</td>
</tr>
<tr>
<td>Yakima Basin release data</td>
<td>1.9</td>
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<td>Yakima Basin redd counts</td>
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(Bill Bosch and Michelle Steg-Geltner)

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**PTAGIS**
Average data set maturity compared to estimated data system maturity:

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<td>Data Systems:</td>
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<td>4.1</td>
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<td>YN Project Level</td>
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<td>2.2</td>
<td>2.3*</td>
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*average of data sets evaluated for those systems
Comments:

• Filling gaps is reliant on program-wide cohesiveness in planning, standards and execution
• Large gaps for project level data management (need data stewards)
• Generally, the jump from Level 2 to Level 3 seems to be a much bigger leap than from Level 3 to Level 4.
• Higher-level functions are being implemented at the project scale, but lacking program-wide implementation, it is difficult to graduate to a higher level for system maturity, even if significant incremental progress is being made at the project scale.
## Nez Perce

*(Clark Watry)*

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<tr>
<td>SGS Redds</td>
<td>3.3</td>
</tr>
<tr>
<td>SGS Carcass</td>
<td>3.3</td>
</tr>
<tr>
<td>Juvenile Abundance</td>
<td>3.2</td>
</tr>
<tr>
<td>Juvenile Survival</td>
<td>3.2</td>
</tr>
<tr>
<td>Summarized Age</td>
<td>3.2</td>
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Nez Perce

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<td>5</td>
<td>3.3</td>
<td>2.0</td>
</tr>
<tr>
<td>NPT CDMS &amp; Kus</td>
<td>3.0</td>
<td>2.0</td>
<td>3.5</td>
</tr>
</tbody>
</table>
Nez Perce

Comments:

• Some criteria definitions are not clear, difficult to apply
• Difficult to discern between maturity levels, only slight changes appear to increase ranking
• Difficult to rate a data set due to managing some drivers at the system scale
• May have taken definitions too literally – clean up definitions and intent
### Umatilla
(Collette Coiner and Ken Burcham)

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<tbody>
<tr>
<td>Adult Weir</td>
<td>3.6</td>
</tr>
<tr>
<td>Water Temperature</td>
<td>3.8</td>
</tr>
<tr>
<td>Spawning Ground</td>
<td>3.6</td>
</tr>
<tr>
<td>Rotary Screw Trap</td>
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Umatilla

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<td>4.3</td>
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Umatilla

Comments:

• Struggled with some of wording / ranking of criteria
• Became a bit of a blur as to what was what
Warm Springs
(Amy Charette, Joe Lemanski, and Tom Iverson)

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<thead>
<tr>
<th>Data Set Name</th>
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<tr>
<td>Fox Creek Vegetation</td>
<td>1.5</td>
</tr>
<tr>
<td>Fox Creek Habitat</td>
<td>1.8</td>
</tr>
<tr>
<td>Fox Creek Topographic</td>
<td>1.7</td>
</tr>
<tr>
<td>Fox Creek PIT Tagging</td>
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<td>1.9</td>
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<tr>
<td>Fox Creek Temperature</td>
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</tr>
<tr>
<td>Middle Fork John Day Habitat</td>
<td>1.8</td>
</tr>
<tr>
<td>Middle Fork John Day PIT Tagging</td>
<td>2.5</td>
</tr>
<tr>
<td>Upper John Day River data sets</td>
<td>...</td>
</tr>
<tr>
<td>Etc... (total of 19 data sets reviewed)</td>
<td></td>
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(Amy Charette, Joe Lemanski, and Tom Iverson)

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<td>Average Data Set Maturity</td>
<td>19</td>
<td>1.9</td>
<td>1.0</td>
</tr>
<tr>
<td>John Day Basin Office</td>
<td>1.4</td>
<td>1.0</td>
<td>2.0</td>
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Warm Springs

Comments:

- Staff in transition
- Rankings were converted from prototype maturity calculator, will need updating once data management staff are in place
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<td>2.5</td>
</tr>
<tr>
<td>Monitoring Recovery Trends - Grande Ronde Water Temperature</td>
<td>2.3</td>
</tr>
<tr>
<td>Kelt Reconditioning - Collections</td>
<td>1.9</td>
</tr>
<tr>
<td>Zone 6 Harvest - Monitoring</td>
<td>1.8</td>
</tr>
<tr>
<td>Nez Perce Harvest - Monitoring</td>
<td>1.9</td>
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<td>1.8</td>
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<td>3.0</td>
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<tr>
<td>CRITFC GIS</td>
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<td>1.4</td>
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<td>2.0</td>
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<tr>
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<td>1.6</td>
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CRITFC

Comments:

• Identified specific actions that could advance maturity of each of their data sets

• Questioned some overlap of the drivers and suggested ways to combine drivers to reduce overall number
Summary/Observations

• Results varied greatly between tribes/CRITFC
• Different levels of commitment from various partners
• Users need to own this evaluation
• Need further refinement to make more useful
• Each entity will use this slightly differently – that is OK
• The thought of using this model can be overwhelming but the actual application is not that difficult or time consuming
• Need to work on how results will be tracked over time
Next Steps

• Individual tribes’ and CRITFC lessons learned
• Continue to fine tune number of drivers and definitions for evaluation criteria (next agenda item)
• Present results in ITMD Annual Report
• Implement DMMM next winter and track changes
Intermission
Initial Deployment of the Tribal Data Management Maturity (DMM) Model

Path to Improvement
Discussion

• Concerns expressed
  • Data sets versus Data Systems (do we need both?)
  • Reduce/refine drivers for clarity and simplicity
  • Make clear difference between levels/rankings
  • Data stewards need to own the model for their tribe

• Process to advance development of model
  • Resume workgroup that developed initial model?
  • Address all drivers or focus on certain types/groups
  • Iterative improvements