

**GENERAL CORE MONITORING PLAN**  
**December 1, 2009, TWG WORKSHOP RESULTS**

**ATTENDEES**

**Participants:** Shane Capron, Rick Johnson, Andy McKinster, Dave Speas, Tom Ryan, Sam Spiller, Cliff Barrett, Bill Davis, Jason Thiriot, Steve Mietz, Kerry Christensen, Kurt Dongoske, Mike Yeatts, Glen Knowles, Mary Barger, Bill Werner, Norm Henderson, Don Ostler.

**GCMRC Staff present:** John Hamill, Ted Melis, Glenn Bennett, Paul Grams, Helen Fairley and Pam Sponholz (acting BIO program manager for Matthew Andersen)

**Observers:** Dave Garrett and Pam Garrett, M3Research

**Facilitator:** Mary Orton, The Mary Orton Company, LLC

**MEETING PURPOSE AND DESIRED OUTCOMES**

- Achieve understanding of the GCMRC proposed general strategy for long term core monitoring (measuring trends in “signals” for resources of critical interest to GCDAMP).
- Enhance support for the general Core Monitoring Plan (including timelines, budget, staffing requirements) and completion of remaining steps (see MRP, 2007, pp. 5-6) for all resource areas.
- Tentative agreement on timeframe and steps for TWG to develop recommendation to AMWG.

**AGENDA**

The group used the follow agenda as a guide during the workshop:

- 1 Welcome, Introductions, and Meeting Purpose – Mary Orton, Facilitator
- 2 Overview of the General Core Monitoring Plan – John Hamill
  - a Review of MRP steps and objectives
  - b Purpose of and need for a CMP
  - c Overview of major sections of the CMP and relationship to SSP/MRP and AMPSP
  - d Overview of status and next steps for each of the monitoring projects (Table 3, page 30 of CMP)
  - e Relationship of the CMP to DOI and State monitoring program needs
- 3 Science Advisors’ Comments and Suggestions
  - a Overview – Dave Garrett (:15)
  - b Q&A, Discussion with TWG (:30)
- 4 TWG Comments and Suggestions – Shane Capron
  - a Overview (:40)
  - b Discussion – are there additions to Shane’s list? (:20)
- 5 Most important issues to be resolved for TWG to approve the General CMP – prioritize and discuss
- 6 Conclusions and Next Steps – John Hamill
  - a Timeline for revision of final draft and recommendation to AMWG
  - b Other items
- 7 Adjournment

## TWG COMMENTS AND SUGGESTIONS

Shane Capron, TWG Chair, created this compilation of major issues from all the comments that were submitted on the GCMRC draft Core Monitoring Plan, and was handed out at the beginning of the meeting.

### GENERAL PROCESS

1. Roles and responsibilities of GCMRC, TWG, AMWG, and DOI should be directly discussed, who is responsible for what in this process and what are the sideboards?
2. The strategy discussion needs to be a greater focus of the document describing the two strategies (science and management; Chapter 2)
3. Need for more discussion about other monitoring programs and monitoring in general (LTER, literature) background, lessons learned, approaches, sampling design
4. Section 2 should be rewritten to describe in more detail the process for the development of the individual plans in greater detail (i.e., expanded discussion of Step 4). This should include an adaptive management component with sideboards on the process to allow forward movement of the plan.
5. Large gulf between science and management in the program, exemplified by KA, what are the implications of uncertainty in science and management?

### CRITERIA FOR ELEMENTS OF INDIVIDUAL PLANS (DESCRIPTION OF STEP 4)

6. Full integration of CMINs/SSQs into the strategy for each goal.
7. Risk assessment for critical choices (qualitative or quantitative based on available resources). We lack information on trade-offs between statistical precision and sampling intensity that will drive costs, these analyses should drive our decision making. Potential components of a risk assessment:
  - o Discussion of trade-offs between statistical precision, sampling intensity/extent, cost, and effectiveness and how the program should look at the scientific implications of these trade offs
  - o This includes recommendations on design and statistical analysis, including the use of power analysis to develop designs and set sampling levels to achieve desired precision
  - o Frequency/extent: a series of options might be given which show how the power is reduced, or other effect including cost, by either reducing or increasing sampling rate or extent
8. Describe criteria for activity inclusion in core monitoring proposals. Examples:
  - o Core monitoring proposal should be based on priority: high priority items should be included and the priority identified. Some elements of core monitoring will be higher priority than others and should be identified
  - o Confidence: include only those activities with high confidence of relating to the eventual DFCs
  - o CMIN: activity is essential to address the minimalist viewpoint for the CMIN (is everything core?). April 9, 2004 CMT memo: in this document, the CMT suggests that the long term plan “adopt a minimalist framework (e.g., no ornaments on the Christmas tree)”
9. To what extent have PEP recommendations been implemented including design and statistical analysis, including the use of power analysis to develop sampling designs and set sampling levels to achieve desired precision

More integration of tribal monitoring in each CMP/goal, critical lack of tribal integration now with emphasis on other areas which may be a responsibility of the NPS. Better integrate tribal values in ecosystem management (Figure 4), TCPs

#### OVERALL COST

10. Missing is concerns of CMT and others to avoid the “Christmas tree” approach and to keep the budget in the 40-60% range of the science budget. Support a process which allows for core monitoring choices which use less of the budget.
11. Budget should be divided into core monitoring, research and development with monitoring, and experimental components (e.g., Knowledge Assessment color approach)
12. GCMRC has grown beyond the scope of the 1996 ROD, and could be replaced in part by a consortium of academics for core monitoring. Costs don’t appear to be competitive with what could be achieved through other routes
13. We lack information on trade-offs between statistical precision and sampling intensity that will drive costs, these analyses should drive our decision making
14. The description of the present staffing plan should include how many individuals are employed in what capacity, why some positions are or are not filled, and more detail on how well the program involves outside collaborators, and how many students are supported by the program. A justification should be provided about how the present staffing varies from the original concept for GCMRC in the ROD. How does the plan for 26 FTEs fit with budgetary constraints we know are coming? Higher staff levels inevitably mean increasing costs greater than CPI. Relate staffing needs with org chart.

#### DESIRED FUTURE CONDITIONS (DFCs)

15. How can we accurately determine which of the core monitoring proposals meets our needs, or perhaps is beyond our needs without specified DFCs for the Management Objectives and without updated AMP Goals? Can we proceed without DFCs, and if so how and what does it mean to the program? Many of the elements may not need DFCs, others might really need them, how do we move forward and advise AMWG?

#### SCOPE OF MONITORING

16. Geographic scope is defined as CRE, which discusses tribes, tribes should be included
17. GCMRC seems to have constrained the scope of monitoring beyond the language identified in the plan
18. CMP should be focused on monitoring for dam operations
19. Lack of a strong species inventory limits our ability to understand ecosystem processes, greater emphasis on inventory programs is needed
20. Need to identify how other agency monitoring programs will be integrated (e.g., NPS I&M program).
21. Need to identify how other agency monitoring programs will be integrated (e.g., NPS I&M program)

#### **MOST IMPORTANT ISSUES TO BE RESOLVED FOR TWG TO APPROVE THE GENERAL CMP – PRIORITIZE AND DISCUSS**

TWG members were invited to add to the list of 21 items (Shane’s short list of issues) and to modify existing items on the list. Then, each was given three dots and asked to indicate their priority for resolution before TWG approved the CMP. They repeated that three-dot exercise two more times. The

following is the result of the exercise, with changes and additions to the original list of 21 items. The cells highlighted in green indicate in which round that item received enough dots to have a priority number.

Resultant Rank	Issues	Initial #	Round A: # of Dots	Round B: # of Dots	Round C: # of Dots
1	<p>Describe criteria for activity inclusion in core monitoring proposals. Examples:</p> <ul style="list-style-type: none"> <li>Core monitoring proposal should be based on priority: high priority items should be included, some elements of core monitoring will be higher priority than others and should be identified</li> <li>Confidence: include only those activities with high confidence of relating to the eventual DFCs</li> <li>CMIN: activity is essential to address the minimalist view point for the CMIN (is everything core?). April 9, 2004 CMT memo: in this document, the CMT suggests that the long term plan “adopt a minimalist framework (e.g., no ornaments on the Christmas tree)”</li> </ul> <p><i>Added at workshop:</i> Be clear about the process of how priorities are set for the CMP. What resources need to be monitored?</p> <p><i>Added at workshop:</i> Develop a way to reduce or eliminate a CM protocol when it is no longer needed. Establish a metric of success.</p> <p><i>Added at workshop:</i> Adequacy to answer critical questions and inform critical decisions.</p> <p><i>Added at workshop:</i> Add to the first bullet “...such as endangered species, water quality standards, and other compliance requirements.”</p>	8	11	1	X
2	<p>How can we accurately determine which of the core monitoring proposals meets our needs, or perhaps is beyond our needs without specified DFCs for the MOs? Can we proceed without DFCs, and if so how and what does it mean to the program? Many of the elements may not need DFCs, others might really need them, how do we move forward and advise AMWG?</p> <p><i>Added at workshop:</i> Goals need to be revisited.</p>	16	9	1	X
3	<p>Risk assessment for critical choices (qualitative or quantitative based on available resources). Examples:</p> <ul style="list-style-type: none"> <li>Discussion of trade-offs between statistical precision, sampling intensity/extent, cost, and effectiveness and how the program should look at the scientific implications of these trade offs</li> <li>This includes recommendations on design and statistical analysis, including the use of power analysis to develop designs and set sampling levels to achieve desired precision</li> <li>Frequency/extent: a series of options might be given which show how the power is reduced, or other effect including cost, by either reducing or increasing sampling rate or extent</li> </ul> <p><i>At the workshop, this item was merged with #14:</i> We lack information on trade-offs between statistical precision and sampling intensity that will drive costs, these analyses should drive our decision making.</p>	7 / 14	8	1	X

Resultant Rank	Issues	Initial #	Round A: # of Dots	Round B: # of Dots	Round C: # of Dots
4	Missing is concerns of CMT and others to avoid the “Christmas tree” approach and to keep the budget in the 40-60% range of the science budget. Support a process which allows for core monitoring choices which use less of the budget.  <i>At the workshop, this item was merged with #12 after Round A:</i> Budget should be divided into core monitoring, research and development with monitoring, and experimental components (e.g., Knowledge Assessment color approach).  <i>Added to original #12 at workshop:</i> Add distinction between monitoring and core monitoring.	11 / 12	4 (#11) +1 (#12)  =5	11	X
5	The strategy discussion needs to be a greater focus of the document describing the two strategies (science and management; Chapter 2)  <i>At the workshop, this item was merged with #4:</i> Section 2 should be rewritten to describe in more detail the process for the development of the individual plans in greater detail (i.e., expanded discussion of Step 4). This should include an adaptive management component with sideboards on the process to allow forward movement of the plan.	2 / 4	2	7	X
5	More integration of tribal monitoring in each CMP/goal, critical lack of tribal integration now with emphasis on other areas which may be a responsibility of the NPS. Better integrate tribal values in ecosystem management (Figure 4), TCPs.  <i>Added at workshop:</i> Include how tribes will be consulted in developing overall and independent CMPs.	10	5	7	X
6	Need to identify how other agency monitoring programs will be integrated (e.g., NPS I&M program).	21	2	6	X
7	<i>Added at workshop:</i> Include socioeconomic core monitoring.	23	1	3	10
8	Geographic scope is defined as CRE, which discusses tribes, tribes should be included.  <i>At the workshop, this item was merged with #18:</i> GCMRC seems to have constrained the scope of monitoring beyond the language identified in the plan.  <i>Added to #17 at workshop:</i> To include areas necessary for successfully monitoring the CRE.	17 / 18	0	2	6
8	CMP should be focused on monitoring for dam operations.	19	1	3	6
9	Need for more discussion about other monitoring programs and monitoring in general (LTER, literature) background, lessons learned, approaches, sampling design.	3	1	1	5
9	The description of the present staffing plan should include how many individuals are employed in what capacity, why some positions are or are not filled, and more detail on how well the program involves outside collaborators, and how many students are supported by the program. A justification should be provided about how the present staffing varies from the original concept for GCMRC in the ROD. How does the plan for 26 FTEs fit with budgetary constraints we know are coming? Higher staff levels inevitably mean increasing costs greater than CPI. Relate staffing needs with org chart.	15	2	1	5
9	<i>Added at workshop:</i> Develop strategic plan for monitoring required to support reintroduction of extirpated species.	24	1	2	5
	Roles and responsibilities of GCMRC, TWG, AMWG, and DOI should be directly discussed, who is responsible for what in this process and what are the sideboards?	1	1	0	1
	Large gulf between science and management in the program, exemplified by KA, what are the implications of uncertainty in science and management?	5	0	0	1

Resultant Rank	Issues	Initial #	Round A: # of Dots	Round B: # of Dots	Round C: # of Dots
	Full integration of CMINS/SSQs into the strategy for each goal.	6	1	2	3
	To what extent have PEP recommendations been implemented including design and statistical analysis, including the use of power analysis to develop sampling designs and set sampling levels to achieve desired precision.	9	0	0	3
	GCMRC has grown beyond the scope of the 1996 ROD, and could be replaced in part by a consortium of academics for core monitoring. Costs don't appear to be competitive with what could be achieved through other routes.	13	0	0	1
	Lack of a strong species inventory limits our ability to understand ecosystem processes, greater emphasis on inventory programs is needed.	20	0	0	0
	<i>Added at workshop:</i> Reports need to be timely and universally available.	22	1	2	1
N/A	<i>This item was merged into #2 before Round A.</i>	4	X	X	X
N/A	<i>This item was merged into #11 after Round A.</i>	12	(1)	X	X
N/A	<i>This item was merged into #7 before Round A.</i>	14	X	X	X
N/A	<i>This item was merged into #17 after Round A.</i>	18	0	X	X

The following points were made during the dot-voting exercise. Mary Orton asked the group to talk about why they thought some items had received a high or low number of dots. She also invited them to share why they thought an item should be a high priority in the following round.

- Prioritizing, “Define how the priorities were set (add to Issue #11).” I do not believe that the priorities have been adequately considered in the development of the General CMP. I want to be certain that the “process” of the collaboration between managers and scientists be explicitly described in the General CMP. Added to Issue #8 “Be clear about the process of how priorities are set for the CMP. What resources need to be monitored?”
- The whole point of #8 is to ensure that the TWG has a role in the process of prioritization (collaboration between the scientists and managers).
- Can there be a description about a way to add or remove elements of the CMP? If a given DFC is accomplished, then could the core monitoring be reduced or eliminated for that resource – and if that process was identified, then I would be more comfortable with the CMP. I want to know that the construction of the core monitoring could be reduced or downsized as the goals of the GCDAMP are achieved. Added to #8 – “Develop a way to reduce or eliminate a CM protocol when not needed.”
- What are the metrics of success that can be evaluated in order to determine when and if the core monitoring can be reduced or removed. Added to #8 also.
- This plan will be merged with the MRP and the revisions of the MRP should be tied to the GCDAMP Strategic Plan – the new and revised MRP would build off from any revisions in the Strategic Plan revisions. The Annual Workplans and the CMP within it would be adapted to the overall planning process of the GCDAMP on an annual to 5-year cycle. (see section 2.9 in the revised draft). This section could be expanded to better identify the process of how the CM can grow or shrink, etc.
- Add #24 – “Develop SP for monitoring required to support reintroduction of extirpated species.”
- Question about General Process listing (five points). Perhaps #s 2 and 4 could be combined? Nobody objected, so it was done and these two were also combined.
- How does the MRP and the General CMP relate back to the GCDAMP Strategic Plan? This relates to Issue #16. Added to #16 “Goals need to be revisited before the General Core Monitoring Plan is completed.”
- Where does it state what is derived for the budgeted activities? Shane states that this issue basically falls into #7 – bullets #1 and #3.
- The role and value of monitoring the CRE downstream of the dam.
- Something might be added to #8, information gained from the monitoring program must be used to formulate recommendations to the SOI about management actions – such as a change in operations? What are the criteria or utility of the information and its acceptable use in making recommendations

that might be needed in the future? Added another bullet to #8 “Adequacy of the core monitoring information to answer critical questions, to inform critical decisions.?”

- Is it appropriate for core monitoring to monitor outside of the agreed upon GCDAMP definition of the CRE?
- It would be outside of the agreed upon geographical scope of the CRE as defined in the GCDAMP’s strategic plan.
- Should there be some text added to clarify the issue of the “core-of-the-core?” Does this fit into any of the existing Issues? Apparently, there is a need to clarify this, but it is not in #12 presently. Added to #12: “Add a distinction between monitoring and “core monitoring” to the existing issue.
- Would monitoring of species outside the CRE, as defined, constitute “core monitoring” or not? Would like to have a comment that the GCMRC re-evaluate the definition of core monitoring.
- Issues that relate to laws that exist outside the program. ESA and CWA require certain compliance activities, but these need to be more clearly identified. Added to #8, first bullet should include “such as ESA, CWA, water quality standards, other compliance requirements.” Perhaps just highlighting it better.
- Suggested combining #7 and #14. No objection, so these two were then combined.
- Request a statement added to the effect “that compliance be specifically and clearly identified – especially, with respect to tribal consultation and involvement.”
- Suggest that they agree to what they are identifying as priority issues – using the **GREEN** dots voting exercise.

Round A of dot voting was done. Priority #1 is original #8, #2 priority is original #15, and priority #3 is original #7. These are set aside and not part of the exercise in future rounds. Mary asked, “Why were those three chosen?”

- They mostly reflect the issues that have to do with making priority decisions about what is desired in terms of resource “targets” and monitoring information. These are followed by the issues relating to tribal integration and the issue of costs and the construction of a “Christmas” tree with more ornaments than may be needed for managers to manage.

Mary asked, “What should be important in Round B?”

- I would have voted for #16 issue on DFCs, but I was under the impression that those would be dealt with by the DOI agencies – hence, we would not be able to influence them through a discussion at this point in time.
- I maintain that the limitations that are now in place (geo – scope) may evolve to some other conditions through the ongoing, adaptive management process (if it is really working). The idea that the CRE, as developed in 1998, should remain fixed is not in line with AEAM. Today, it may become clear that a broader scope of core monitoring might make a great deal of sense.
- Mary combined #11 and #12 at the request of the group..
- I voted for #6 because of the same reason that Cliff did not vote for #16. Is #6 the desire to have some influence on the priorities setting process (through focus on CMINs/SSQs)?
- Regarding the scope of monitoring –the wording of Issue #19 – “dam operations” being the focus of core monitoring. Is there agreement about the interpretation of this comment?
- Request that #17 be revised to read “Scope of monitoring might be expanded to include other areas necessary for successfully monitor the CRE (areas that may be outside the current definition of the CRE.”
- When #8 was re-written (adequacy to answer critical questions, inform critical decision), I believed that its importance was elevated and I think that folks should vote for it.
- Mary combined #17 with #18 at the request of the group.
- I believe that the CMP budget should be 40-60% of the Science budget, not the AMP budget. #11.

Round B of dot voting was done. Priority #4 is #11-12, #5 priority is #10 and, #2/4, and priority #6 is #21. These are set aside and not part of the exercise in future rounds. Mary asked, “Why were those chosen?”

- Issues of importance – I voted for the issue of scope – I would like for AMWG to provide more clarification on the CRE definition.

Round B of dot voting was done. Priority #7 is #23, #8 priority is #17/18, and #3, #15 and #24 are tied for ninth.

The group agreed to further discuss the high-priority issues, and they began with Issue #8:

- GCMRC’s perspective from John Hamill: our approach to issues raised in #8 was that we focused on the history of where the emphasis has historically been in the development of the annual workplans and other plans that have come out of the GCDAMP. As we have followed that documented guidance, there now seems to be doubt from some TWG members about whether or not those perceived priorities are still valid and supported by the GCDAMP. If these are not the right balance of priorities, then the TWG needs to provide the additional guidance to come up with a revision of the Draft CMP that would be more supported by the TWG. We committed to providing some level of monitoring for each of the resources identified in the GCDAMP’s Strategic Plan.
- Request for a specific section of the CMP that reflects the concern about the issue language “Describe criteria for activity inclusion in core monitoring proposals.”
- Need to have some assurance that the monitoring will directly address the need tied to the eventually determined DFC?
- Idea was to take the number one CMIN for each resource and step that down to management need (stepping down process has not been done). We need to do the step down process before the entire core monitoring plan can be meaningfully developed.
- Nearshore temperatures are brought up as an example of how monitoring and modeling could be used to meet the needs.
- Quite a bit of discussion on the need to get the priorities set straight before the General Core Monitoring Plan.
- There needs to be a process in place to allow the adaptive management group to resolve what their need is for getting the core monitoring needed for doing the management. There needs to be a spectrum of options for levels of certainty about the information on status and trends for given resources.
- There needs to be a process for assessing the level of needs for resource information that managers could use in the adaptive management program. Alternative approaches would need to be identified for different levels of monitoring (sediment monitoring, might be the one to start with since this is one project that has attempted to complete the Step 4 recommendations report process and shared it with the TWG).
- Concerned with the fact that the priorities are not defined well prior to the completion of Step 4 reporting. By including everything that’s being done right now, you impose priorities into the General CMP that have not really been vetted through the TWG and AMWG.
- Agrees that the priorities need to be resolved by the TWG, then the four-step process should be pursued.
- Agrees that the priorities need to be set at the Strategic Planning level – by AMP.
- It’s too big to grasp all at once in the General Plan.
- The management community needs to get the work done in setting the priorities – the science community cannot do this.
- I wonder whether the priorities have been actually resolved by the AMP. (Mary Orton recounted the 2004 AMP priorities process that resulted in the priority of the strategic questions.)
- Some things are obviously missing: extirpated species and socio-economic monitoring.



- Is the socio-economic part of the need actually a core monitoring activity or is it a part of the research part of the MRP?
- I believe that the DFCs must be established to fully grasp the scope of monitoring needs.
- GCRMRC should be able to tell the managers whether or not the proposed protocols will be able to inform the SOI about the influence of the managed actions (operations or otherwise).
- A good place to start is the fisheries PEP and completion of Step 4 for Rainbow Trout and Humpback Chub in FY 2010.
- I am concerned that the DFC process is continually delayed and if we remain inactive while waiting, the planning process does not turn out to be a quality result.

Discussion on issue #11/#12:

- There is a need for maintaining some flexibility as the program moves into the future. The essential “core-of-the-core” monitoring would be the part that occurs without question at whatever the interval. Then the second level of monitoring would have the latitude to implement or not in a given year – depending upon the perceived need of managers to best meet their needs along with the other activities (research) that are required.

It was suggested by GCRMRC that the process agreed upon by TWG members for collaborating with GCRMRC on development of Step 4 monitoring reports (recommendations for core monitoring) be implemented in 2010 with respect to the Step 4 report for fisheries monitoring (rainbow trout and native fishes) since the PEP report has now been finalized.

#### **NEXT STEPS**

- a. Discuss & agree on any large items/areas left out of draft CMP (or that should be eliminated),
- b. Amend the Step-4 process to include General Comments #1 & #3 (dot-ranked). Implement the changes in process with the Goal 2 (fish program) core monitoring plan. Shane, Rick and Cliff will work with GCRMRC on this revision.,
- c. Recommendation to AMWG on DFCs (#2 dot-ranked) to be considered at January TWG meeting during the discussion on GCMP,
- d. Define iterative process between GCRMRC & TWG for finalizing core monitoring plan. Shane, Rick and Cliff will work with GCRMRC on this revision for January 2010,
- e. Come to agreement on core monitoring definition,
- f. GCRMRC will create a response to comments table and revise draft for March 2010 TWG meeting,
- g. Norm and Shane will discuss the large-scale prioritization of the GCMP, and then possibly fold that into the small group above,
- h. GCRMRC will report to TWG (report to be given by Helen Fairley on January 21, 2010) & AMWG (February 2010) on results of this workshop and solicit feedback.

#### Timeline

January 2009: GCRMRC will report to TWG at its January meeting on the progress on revisions and major tasks outlined at the workshop.

March 2009: GCRMRC will create a response to comments table & revise the GCMP draft for the March TWG meeting.