Reviewer Report on
Fish Passage Program Review

Reviewer #6

Key (specific) Findings and Recommendations (as reviewer has comments on)

- **Question 1: Our goal is to, "conserve habitat for managed fisheries and protected resources," and one of the strategies for achieving this goal is expanding available habitat type by "increasing access to historic riverine rearing and spawning habitat for targeted diadromous fish species." Where do you see us excelling in achieving this goal? What kinds of things could we be doing or doing more of to help us achieve this goal?**

    - Observations: This is a difficult topic for the panel to evaluate unless members have specific experience with programs in their regions. The review format that places regional staff together with HQ supervisors is likely to bias presentations toward successes and suppress frank and open discussion of limitations, making it difficult for panelists to provide a balanced assessment of strengths and weaknesses. Panelists were uniformly underwhelmed by the program goal statement (but see *Observations* under Question 5). The scientific foundations for program goals, priorities, and performance indicators are not generally clear. Outside of the WCR we heard no mention of regional coordination with federally-recognized Indian tribes that, in some regions, are recognized as sovereign governments with bounded authorities to co-manage Treaty resources.
    - Strengths:
        - Regional staff appear highly motivated and familiar with their program mission and goals.
        - Program goals are strongly linked to resource utilization and benefits to stakeholders who are dependent on fishery resources for culture, subsistence, and livelihood.
        - Staff appear to have a clear understanding of authorities and jurisdiction for implementing their programs, yet also have a pragmatic recognition of the political and legal dimensions of resource management.
        - Authority to negotiate settlement agreements with FERC license applicants and other dam or barrier owners allows hydro program staff to approach applicants on equal footing to represent resource needs and interests, while federal authorities to enforce settlement agreements assure compliance.

        - CRP presents opportunities to create coalitions of aligned interests that build consensus priorities and goals for restoration outcomes. The availability of CRP support attracts partners, provides incentives to engage in constructive discussions about fish passage objectives, builds important trust relationships, and assists partners in taking leadership roles in watershed restoration.
    - Challenges:
        - HQ staff are strong administratively but fuzzy on regional priorities and the science basis for them, focusing instead on high-level program performance indicators that have high communication value but little biologic relevance.
        - Program goals tend to define success in terms of implementation rather than biological effectiveness and the science basis for passage and restoration goals is not clear or consistent between regions. This may hamper regional development of performance metrics that reflect the biological needs of target species and the effectiveness of actions (but see Question 5).
        - Some regions have a clear and systematic approach to identifying priority watersheds, others do not. It is unclear whether there is a systematic approach to evaluating CRP project proposals and potential contributions to improving target species status. There seems to be little preparation for the effects of climate change in project selection criteria.
        - Staff expressed frustration at the inability to effectively incorporate adaptive management provisions in FERC licenses.
        - Minimal understanding of the federal tribal trust responsibility and how alliances with tribes can advance program goals and tribal resource interests.
- Recommendations to address issue:
    - HQ: Clarify the definition of ”adequate fish passage” to give biological significance to the terms, “safe, timely, and effective” based on the demographics of priority species. Fish passage prescriptions should include passage survival standards that are supported by defensible science, are measurable, and are verifiable. Encourage all regions to consider and adopt consistent approaches to setting fish passage goals that incorporate survival standards.
    - Regions: Encourage enforceable settlement agreements with dam operators that establish survival standards rather than passage measures. In the PNW we have found that standards, rather than prescribed measures, allow operators to design passage solutions based on their operational expertise that optimize operational factors while being held to biologically meaningful passage standards. We also have found that, on occasion, passage measures advocated by the fishery parties

simply do not deliver the expected survival benefits after implementation and the dam operators then have no further obligation.
    - HQ: Schedule regular and purposeful visits to regions in order to 1) improve HQ's understanding of regional issues, priorities, strategies, and constraints, 2) bring consistency to regional approaches and policies at the national level, and 3) sharpen the message and rationale for program support.
    - HQ: Coordinate with the Science Center chain of command to support the regions in understanding the demographics of priority species. Science Centers should develop population models that rationalize fish passage prescriptions, passage survival standards, restoration priorities, and program performance metrics.
    - HQ: Evaluate how the federal trust responsibility to Indian tribes, which imposes a duty on federal agencies to "preserve, protect, and enhance treaty trust resources" on behalf of tribes, may be used as a "force multiplier" to leverage more favorable terms in hydro passage settlements and watershed action plans.

- **Question 2: How do we better integrate Hydropower regulatory requirements and timelines with voluntary habitat restoration opportunities into a strategy for addressing highest priority barriers?**

    - Observations: This question relates directly to Question 3. The suggestion of a "strategy" to integrate regulatory and voluntary efforts points to the value of a watershed planning approach. Presenters clearly described the challenges of reconciling multiple, non-sequential FERC license schedules with the pursuit of more immediate restoration goals and opportunities in high-priority watersheds. The uncertainty and prolonged length of license proceedings may diminish the interest of potential restoration partners in high-priority watersheds. The presence of a robust CRP restoration framework for priority watersheds could assure partners of a rational and sequential restoration program through time and could incentivize dam operators to engage in settlement discussions with the Hydro program. Based on staff presentations it is apparent that better and more consistent coordination between the Hydro Program and CRP is necessary to accomplish this.
        - Strengths:
            - GAR and SER regional CRP staff demonstrated innovative methods for identifying priority watersheds based on regional species priorities, habitat condition, passage feasibility, and other reasonable factors.
            - CRP and Hydro programs appear to support the cooperative development of strategic plans for priority watersheds
            - Identifying priority watersheds rationalizes the allocation of staff resources to developing strategic plans for FERC licensing and

restoration efforts that are aligned with local species and restoration priorities.
- A priority watershed approach encourages potential restoration partners to invest effort and funding with greater assurance that investments will not be stranded by shifting or inconsistent future priorities.

■ Challenges:
- Coordination between regional CRP and Hydro is inconsistent and not always timely.
- Coordination may be hindered by the separation of program staff across towns, states, and mission priorities.
- Ranking matrices inherently create "winners and losers" in terms of species priorities and the ranking criteria chosen. Ranking on the basis of human utilization values may undervalue species of critical importance to ecosystems, e.g., forage species.
- Species ranking criteria may not reflect the broad scope of human cultural values for species within a watershed.
- Establishing priority watersheds for long-term investments in habitat restoration implies that priorities will not evolve over time in the presence of changing values, new information, and new staff.

○ Recommendations to address issue:
■ HQ: Accepting that regional staffs should understand their own species and watershed priorities before involving external publics, ensure that regional program priorities are vetted with local publics that include not just the majority but also minority perspectives and values.
■ Regions: In collaboration with the public, create and maintain updated watershed restoration frameworks for each priority watershed. These serve as roadmaps for long-term restoration planning, provide guidance, coordination, and continuity between Hydro and CRP staff (and their successors) in setting objectives for FERC license terms, communicate licensing objectives to potential partners in coalition-building, and provide guidance for partners in developing projects most likely to bear fruit.
■ HQ: Bring together lines of authority between Hydro and CRP at the national level to encourage regional cooperation in strategic planning for upcoming FERC licenses and watershed restoration planning that will help shape license terms and leverage investments in watershed restoration.

- **Question 3: How do we better incorporate a "watershed" approach into high priority fish passage habitat restoration?**

○ Observations: Perhaps a better question is, "How do we rationalize *not* taking a watershed approach?" Identifying priority watersheds in each region has value in terms of anticipating staff priorities and workloads, but watershed prioritization

really only has value if it is supported by an action plan to produce measurable improvements in the status of priority species within the priority watershed. A watershed restoration framework can serve many purposes within habitat programs; as an organizational tool for planning and rationalizing staff priorities, a guide for identifying, assessing, and measuring restoration projects, a logic map for sequencing restoration efforts through time based on FERC license schedules, and a baseline for reporting program accomplishments.

- Strengths:
  - The concept seems to have general acceptance by all regional staff.
  - Watershed planning engages a broad base of potential partners and regional experts in organizing support for fish passage.
  - Implementing a watershed approach can establish a restoration baseline against which to measure project effectiveness and program performance.
  - Regional science centers and PRD programs can assist in providing data sets and guidance for watershed restoration plans.
  - Watershed planning is likely a regional CRP function in consultation with other programs; direct CRP coordination between the regions and HQ streamlines implementing the approach.
- Challenges:
  - Effective watershed planning requires information bases that vary in quality, quantity, and availability across regions.
  - Some regions may not have the time, staff resources, or information bases needed to implement the approach.
  - Developing program-wide implementation and performance goals will be problematic for regions that cannot implement the approach.

- Recommendations to address issue:
  - HQ: Ensure that all regional hydro and CRP staff have access to training in “the watershed approach” in order to translate theory into practice.
  - HQ: Secure the cooperation of PRD and science centers at the national level to assist regional staff in assembling, analyzing, and understanding the available fish population data relevant to watershed planning.
  - HQ: CRP supervisors should ensure that all regions adopt the watershed approach, to the extent they can, in strategic planning for passage restoration in priority watersheds.
  - Regions: Perform needs assessments to identify information, resources, and assistance (e.g., Science Center, PRD) required to implement a watershed approach.
  - Regions: In consultation with cooperating programs, develop restoration program goals and performance indicators for priority watersheds based

on the understood biological requirements (e.g., viability criteria) of priority species.

- **Question 4: How can we better coordinate our Hydropower and Community-based Restoration projects to build momentum within a watershed to open and create more opportunities for accessible habitat?**

    - Observations: Presenters indicated that CRP and Hydro may not synchronize efforts in responding to fish passage opportunities, particularly those related to FERC license proceedings. CRP staff complained of not being contacted about FERC proceedings until well into the process. Missed opportunities by not including CRP at the outset of license proceedings include the inability to 1) create stakeholder coalitions in support of favorable passage outcomes, 2) discover watershed restoration opportunities that may arise during the process, and 3) incentivize potential partners (possibly including applicants) with the availability of CRP funding to leverage passage prescriptions.
        - Strengths:
            - There is a natural intersection of objectives between the Hydro and CRP programs that lend mutual support to each.
            - The regulatory authorities vested in the Hydro program and the funding available through the CRP create carrot-and-stick incentives for FERC-licensed dam operators and other responsible parties.
            - FERC licenses offer opportunities to restore and improve passage to habitats where CRP restoration activities can enhance the mitigation value of prescribed license terms.
        - Challenges:
            - Regional CRP offices are closely supervised through HQ while regional Hydro offices are given relative autonomy. The different lines of authority may hamper development of consistent regional policies on cross-program coordination.
            - Program priorities and staff obligations may preclude cross-program coordination and result in missed opportunities for complementary fish passage and restoration planning in FERC license proceedings.
    - Recommendations to address issue:
        - HQ: Establish policies in both Hydro and CRP that require regional programs to coordinate in developing watershed restoration frameworks at the outset of strategic planning for FERC license proceedings. This provides time for CRP to engage and educate the public, identify potential restoration opportunities associated with licensing, and coordinate with Hydro in a mutually-supportive licensing strategy.

        - HQ: Consider strengthening lines of authority from HQ staff to regional Hydro staff and maintaining regular coordination between Hydro and CRP at the HQ level.
        - HQ: Communicate all policies, conclusions, and directions reached in HQ-level Hydro/CRP coordination to regional staff through HQ-sponsored regular coordination calls that facilitate information exchange between programs in the regions.
        - HQ: Co-locate Hydro and CRP staff in the regions wherever possible to enhance the exchange of information between programs through hallway conversations and regular personal contact.
        - Regions: Coordinate early and often during upcoming FERC license proceedings.
        - Regions: Develop watershed restoration frameworks for priority watersheds that guide the development of strategies and objectives for FERC license terms.

- **Question 5: How can we improve our strategy and structure for evaluating agency-wide fish passage program outcomes?**

    - Observations: This question is linked to Question 6 in the sense that evaluating program effectiveness depends on monitoring program performance relative to program goals. As noted above, panelists were uniformly unimpressed by program goals that seem designed to count implementation actions rather than measure resource benefits. On the other hand, one could argue that program performance metrics should 1) relate clearly to the purpose of the program and 2) be no more complex than is justified by the technical backgrounds of the target audience[s]. Accordingly, describing program outcomes depends on whether performance is to be "reported up" to administrators, auditors, and appropriators or "reported out" to stakeholders and peer groups. For example, if the purpose of the Open Rivers Initiative was to remove barriers and restore access to blocked habitat, then "Miles Opened" might be a reasonable performance metric for reporting up. Obviously, "Miles Opened" reveals little about fish use and benefit of the new habitat that surely was a major purpose of the initiative.
        - Strengths:
            - High-level metrics are understandable to non-technical audiences and should link directly to the program authorization.
            - Regional science centers have the capacity to develop biologically meaningful metrics of project effectiveness and biological response.
            - Monitoring and evaluation programs associated with FERC licenses, ESA listings, and priority species protection can provide data to support biologically meaningful reporting metrics.
        - Challenges:

- High-level metrics may convey little of significance to evaluating biological outcomes.
- Reporting metrics based on actions taken rather than biological outcomes can be perceived as intended to preserve programs rather than natural resources (note that both are important).
- Biologically-meaningful reporting metrics usually are more difficult and expensive to obtain. Funding sources and partners available to develop biological performance metrics and monitoring systems may vary considerably across regions.

  - Recommendations to address issue:
    - HQ: NOAA-Fisheries is comprised of scientists having extraordinary reach and grasp of data sets and demographic models for priority fish populations in each region. Exploit this resource to help regions develop restoration priorities and a consistent set of biologically-meaningful program performance metrics.
    - Regions: Build restoration frameworks for priority watersheds that describe restoration goals and strategies in the context of the biological priorities identified in the step above.
    - HQ with regions: Configure program performance metrics to meet the needs for both "reporting up" and "reporting out." In addition to metrics for reporting up, develop quantitative performance metrics, where information and analysis permit, for internal review within regions and for reporting out to peer groups.
    - Regions: In general, choose dis-integrated project performance metrics at temporal and spatial scales that reflect project effects and are not confounded by unrelated events. For example, fish abundance or population productivity are not effective measures of dam passage performance because they integrate the cumulative lifecycle effects of factors unrelated to dam passage that may mask project effectiveness.

- **Question 6: Within our program activities, what is the most effective balance for investing in implementation and monitoring and evaluation?**

  - Observations: Questions 5 and 6 really are about the cost-effectiveness of a performance metric. Documenting "miles opened" is not biologically informative but can be "monitored" by a simple map exercise while, at the other extreme, documenting the life-stage survival benefits of a project can require substantial investments of time and resources. The level of investment in M&E is determined by its purpose; project effectiveness monitoring (i.e., is the project performing as intended) is a relatively simple assessment while biologic effectiveness monitoring (i.e., is the project producing the intended population benefit) usually is complicated, expensive, and difficult to pull off in many settings. Biologic effectiveness monitoring, as important as it is to project

selection, can drain funds better spent on “no regrets” restoration projects that are known or strongly suspected to produce fish benefits.

- Strengths
  - This is not so much a dilemma for the Hydro program, which should include M&E for fish passage effectiveness as a condition of FERC licenses.
  - CRP HQ seems to be addressing program performance and effectiveness monitoring in a systematic and thoughtful way.
  - Other agencies and partners may be actively monitoring priority species and watersheds.
  - The WCR CRP has developed a sensible and effective protocol for evaluating the potential biological benefit of project proposals and monitoring the realized benefits.
- Challenges
  - Coordination and management of monitoring systems for consistent monitoring methods and performance metrics across regions is problematic.
  - The lack of staff resources, strategic plans, and stable funding may limit the ability to develop consistent monitoring programs across regions.
  - Project selection criteria benefit from biologic effectiveness monitoring but limited restoration funding rarely can support intensive monitoring efforts.
  - There is no clear rationale or model for partitioning restoration funding between implementation and M&E.

- Recommendations to address issue
  - HQ: In general, limited funds should be prioritized for implementation to restore the loss and function of priority habitat. However, project proposals are rationalized on the basis of expected outcomes and should identify a percentage of the award, probably not to exceed 10%, to verify that the project was implemented as designed and functions as intended.
  - HQ: Consider adopting the WCR CRP monitoring protocol for application in all regions. While monitoring metrics surely will vary across regions for many reasons, the monitoring framework itself represents a rational approach to evaluating proposed actions by predicting biologic outcomes and measuring project effectiveness in simple biological terms.
  - Regions: Where the biologic effectiveness of a project type has been demonstrated it is unnecessary to duplicate it for similar project types.
  - Regions: Coordinate with other agencies and tribes to leverage their monitoring efforts and reduce program investments in M&E relative to implementation. Many tribal, state, and federal agencies conduct long-term monitoring for other purposes that can supply metrics of value to restoration project monitoring.

- **Question 7: What are steps we can take to improve our outreach to ensure we are effectively communicating the importance of fish passage?**

    - Observations: I have little to add to the discussion in open forum on program strengths and weaknesses since the key ideas were captured by the facilitators. However, a couple of impressions stood out; 1) outreach efforts seem to target allies and lack a strategy for engaging the "culprit entities" whose partnership could lead to significant resource benefits, and 2) there is little awareness outside the WCR of the value in partnering with tribes. No entity has lost more and benefitted less from watershed development than tribal communities and none is more highly motivated to reverse the cultural and resource costs incurred by it.
        - Strengths
        - Challenges
    - Recommendations to address issue:
        - HQ: Strengthen outreach and coordination with NGOs and other potential partners at the national level. These are necessary and effective relationships (unless they happen to be suing you).
        - HQ: Outreach efforts seem focused on coordinating with allies and potential partners who need little persuasion of the importance of fish passage. Those efforts are necessary and effective, but also consider undertaking a national effort to expand outreach to federal agencies, public utilities, and private entities that own or operate passage barriers. FERC, the US Army Corps of Engineers, national hydropower advocacy groups, and others should be targeted for relentless outreach efforts that increase awareness and develop relationships that can advance the HE program mission and goals.
        - HQ: Outreach efforts are missing a clear opportunity to enlist Native American tribes in achieving better fish passage outcomes. Explore the advantages of a Native American Policy within the HE program that encourages regions to seek partnerships with local tribes. Collaborate with the National Congress of American Indians (NCAI) in developing such a policy and enlisting the considerable political and messaging support of regional tribes.
        - HQ and regions: Consider pro-active development of partnerships with regional tribes to leverage a growing national awareness of the need to remove or modify road culverts that block fish passage. The so-called "Culverts Case" in *U.S. v Washington* includes only state-permitted or owned barrier culverts, but the likely result of the lawsuit will have broad implications for others, including federal agencies that may block more stream miles in the regions than do state agencies.

Conclusions: Several major themes were apparent from presentations and discussion among panelists. These include:

1. Refinement of goal-setting and performance metrics. Panelists noted that program goals and reporting metrics may have little connection with the biological condition of target resources affected by program activities. Panelists also acknowledge that reporting metrics are constrained by the technical background of the target audience, which may vary considerably between regional and HQ levels. High-level goals and reporting metrics intended for use by HQ should be supplemented with science-based goals and reporting metrics at the regional level. Science centers, universities, and contractors should be consulted as needed to develop program performance and reporting metrics that reflect actual measured changes in population viability, such as abundance, productivity, and spatial distribution, as a result of project actions. The WCR CRP appears to have an innovative and rational protocol for predicting the biological value of project proposals and evaluating project effectiveness in terms of measurable population metrics. This format, tailored to include the population metrics available or relevant to the region, should be considered by all regions for reporting project performance.
2. Coordination across management levels, regions, and between Hydro and CRP. Always a challenge and a special one for strongly regionalized programs, coordination between the dispersed regional Hydro and CRP offices may be hampered by different organizational structures. Hydro reportedly is more regionalized and CRP is relatively more centralized, and this may disrupt smooth coordination between the programs in the regions if HQ oversight and priorities for the CRP are not aligned with or complementary to regional priorities for the Hydro program. Regarding consistency of priorities and approaches across regions, I am persuaded of the value in regional program autonomy to select workload priorities that reflect their particular circumstances and public interests. However, there may be value in exploring how HQ can improve the consistency of goals, methods, and standards across regions while preserving the flexibility within regions to design work plans that comport with local conditions and priorities. For example, GARFO and SER appear to have logical and defensible protocols for identifying priority watersheds, whereas WCR and AK do not appear to have one. Consistency in science-based biological performance metrics also may improve project effectiveness monitoring across regions. With regard to HQ-level coordination, there seems to be general agreement that HQ staff should cultivate strong relationships with other relevant federal agency staff and the national offices of potential NGO partners to improve collaboration and communication.
3. Importance of watershed restoration frameworks for guiding Hydro and CRP planning. Presenters repeatedly mentioned the difficulty of prioritizing watershed restoration activities around multiple passage barriers and emergent opportunities presented by willing partners. It seems clear that a watershed restoration “framework” of some sort, whether a recovery plan, biologic strategy, or general watershed plan, would allow Hydro and CRP staff to be both strategic and opportunistic in planning watershed restoration efforts. A fairly detailed watershed restoration plan could, for example, guide regional staff in long-term strategic planning for passage at multiple barriers in a watershed. A watershed plan that foresees passage at multiple dams would justify including passage prescriptions on upstream barriers even if the prescription opportunity predates that for

gateway barriers downstream. Similarly, a watershed plan would allow CRP staff to evaluate how or if an unsolicited partner proposal is consistent with long-term, more strategic restoration goals. Further, such a plan provides continuity through time and staff changes, enhances transparency and public confidence in funding decisions, and is easily communicated to others internal and external to the Hydro and CRP programs.