

Reviewer Report on Fish Passage Program Review

June 8, 2018

Background: NOAA's Fish Passage Program is a large, and somewhat sprawling, enterprise that makes significant contributions to restoring access to historic habitats for migratory fish. Given the size and complexity of the program, it is challenging as an external observer who received a relatively brief overview of the program to provide insights that will be of value to agency executives and program staff for improving the enterprise. Nevertheless, I offer below my observations and recommendations about the various questions within the scope of the program review.

General Observations and Recommendations:

Overall, the various prongs of the program (i.e., Hydropower, CRP) are making worthwhile contributions to fish passage restoration independent of one another. More could be accomplished, however, and the program's mission would be better served if additional efforts were made to coordinate the activities of these prongs into a more concerted endeavor.

Throughout the program review, the reviewers mostly heard presentations about what is going well in the program. It is difficult to determine if the information that was shared is an accurate and comprehensive depiction of how things are actually going in the program. Therefore, my observations and recommendations are likely to be different than those I would have shared as the result of an independent investigation of the program. I recommend that, in the future, program reviews be organized by an independent third party that keeps the agency and the agency's interest in depicting a well-managed, high-functioning program at arm's length.

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: Many barriers to fish passage have been placed throughout the river networks of the U.S. during the last 250 years. Given the vast number of hydropower projects and other barriers that block or impair fish passage, the NOAA fish passage program and other organizations with similar missions have more work to accomplish than there are resources available. Because of this,

cross-organization coordination and prioritization to channel resources to the most important projects and work towards accomplishing clearly defined goals is essential for success.

■ Strengths

- Much seems to be going well. Most presentations emphasized what is working well in the program. There are successes to share and celebrate.
- Staff are motivated and dedicated to the mission of the fish passage program.
- The program evidenced a strong understanding of the authorities it has available to accomplish its mission.
- Innovative solutions are being applied to provide upstream and downstream passage at FERC-licensed hydropower dams and to restore natural riverine conditions elsewhere.
- The program is willing to pause and evaluate its progress and look for opportunities to improve. The willingness to do this reflects well on the program and its desire to fulfill its mission.
- The program is focused on improvement and some regions indicate that they have seen improvements in the last decade.

■ Challenges

- The divergent organizational structure and loci of decision authority of the different programs involved in the fish passage program makes effective coordination difficult. Specifically, regional control of the hydropower program and national control of CRP hinder coordination.
- Coordination with other divisions/units of NOAA that make important contributions to fish passage (e.g., PRD and Fisheries Science Centers) do not seem to be fully integrated in the fish passage program. This is evidenced by these divisions/units not being directly represented in the program review.
- Each region is unique with respect to geography, social and partnership context, and biological resources. This is a challenge because it makes standardization and consistency of approaches difficult. It also makes it difficult to compare regions and their accomplishments to one another in order to assess areas of relative strength and weakness across regions. It does seem, however, that some regions have been more effective than others in applying the watershed approach to remove significant barriers to fish passage in a concerted way.
- In some cases, it appears that declines in staffing and changes in organizational structure (e.g., in WCR) will make it difficult to replicate past success and to achieve future goals.
- Ecological restoration is by nature a relatively slow process, as is building social consensus about how best to manage and restore rivers. Both consensus building and restoration require patience, but the program is

faced with an impatient and demanding system when it comes to identifying projects and reporting accomplishments.

- The program's strategic goal of increasing access to historic rearing and spawning habitat by 2020 does not include a specific numerical target. This is too open-ended to drive agency and partner investment and action or to show meaningful progress.
- o Recommendations to address issue
 - Revisit regional versus national control of various aspects of the program. Consider improving organizational consistency.
 - Program leaders are to be commended for making the time and space to bring together key staff to discuss their work and learn from one another. The staff's preparation for and gathering for the review may be the most valuable aspect of the review. This type of reflection and communication should happen on a regular basis and is likely to result in continual improvement of the program.
 - Increase opportunities for details or rotations among Hydro and CRP, and throughout regions, to build relationships and understanding and to foster community of conservation.
- **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?**
 - o Observations: The Hydropower aspects of the Fish Passage Program operate fairly independently from its support of voluntary restoration activities. The lack of a leadership structure that unites these programs and makes them accountable for working together to address the highest priority barriers dissipates some of their potential strength in accomplishing fish passage objectives in a focused manner.
 - Strengths
 - Multiple authorities and pools of resources are available to accomplish the mission of the fish passage program.
 - CRP can provide a wide range of assistance to grant awardees, from technical assistance to financial resources, to reconnect and restore fish habitat.
 - CRP and Hydropower share a common interest in restoring fish passage to historic habitats.
 - CRP staff and partners develop partnerships that result in high-quality proposals for funding. These proposals then compete with one another so that the best-of-the-best projects are funded.

- The NOAA Fish Passage Program recognizes the importance of prioritizing projects and other investments when staff time and financial resources are limited.
 - Regions have developed approaches to prioritizing their work that are tailored to their needs and which help to focus efforts where the needs are greatest and where agency engagement is most likely to have beneficial effects.
- Challenges
- Hydropower program is regionally controlled, whereas the CRP program is nationally controlled. CRP staff are part of the HQ organization, and are embedded within regional offices without being accountable to regional directors.
 - Hydropower program has so many projects that it is difficult for the available staff to pay sufficient attention to all of them as well as having time to devote to internal and external coordination.
 - National and regional roles and responsibilities for hydropower program are not entirely clear. For example, the HQ roles of national policy & regulations; internal & interagency coordination; assistance to regions with projects; inform legislation; and make strategic investments seem to overlap somewhat with the regional roles of exercising Federal Power Act authorities; ensuring fish passage improvements are made during license implementation; and developing partnerships.
 - FERC has ultimate authority for license oversight and implementation. Although NOAA sets conditions, enforcement is out of its hands. FERC also determines whether licenses will be re-opened to change requirements if NOAA believes that adjustments are warranted.
 - Expected impacts of climate change are not explicitly considered in CRP project selection. For example, it did not appear that the likelihood that a restoration project would enhance species' ability to be resilient to climate change or that a project would be likely to continue to benefit the intended species or biological community were taken into account in the project selection criteria.
 - Each region has their own prioritization process and rationale. This lack of consistency and standardization makes it difficult for project proponents and other stakeholders to know what to expect as they work at different locations across the nation.
 - CRP and Hydropower staff do not appear to be in regular communication with one another in all cases. Regular communication would provide opportunities to identify projects of mutual interest such that the unique authorities and resources of each program could be applied to produce greater ecological uplift throughout a watershed than either program could accomplish alone.

- National staff who make CRP funding recommendations may not be fully aware of regional and local conditions and opportunities and how proposed CRP projects might fit into broader restoration efforts in connection with the relicensing of hydropower projects.
 - There are disparities among regions in the proportion of CRP funding provided to the region (e.g., particularly low for Southeast Region), and the degree to which CRP and Hydropower fish passage efforts are aware of one another's efforts.
 - The commitments of NOAA staff involvement and labor that NOAA staff write into fish passage prescriptions at hydropower projects are not well tracked at the national level and, in some cases, not well tracked at the regional level either. It appears that the commitments that have been made are greater than the agency's capacity to meet these commitments.
 - Each region's approach to prioritization is different and not necessarily consistent with that of the other regions. This makes it difficult to roll up the regional prioritizations into a national view of where needs and opportunities are concentrated.
- o Recommendations to address issue
 - Clarify national and regional roles within both Hydropower and CRP.
 - Seek a more consistent and systematic approach across regions while still allowing for regional flexibility to adapt to regional and local conditions.
 - Work to strengthen working relationship between NOAA Fish Passage Program and FERC at a national level. Increased national coordination of NOAA's Hydropower program will likely improve the agency's ability to improve its relationship with FERC at a national level.
 - Add one or more criteria to the CRP project selection criteria that require consideration of the project's likelihood to address the effects of climate change.
 - Consider an updated organizational structure that brings the FERC and the CRP programs under unified leadership to improve consistency and accountability.
 - Considered standardizing prioritization process across regions. Or at least consider adopting a "concentric circle" approach where some common criteria or prioritization criteria are used by all regions, and additional criteria particular to a region can be added on. With the current approach, it is difficult, from a national perspective, to make sense of the overarching logic of the various prioritization approaches across regions
 - Involve a broader group of staff in the CRP project proposal review process. In addition to CRP staff who sit in the regional office, reviewers should include staff from the Hydropower fish passage program in the region where the project is proposed.

- The NOAA Fish Passage Program should decide whether it wants to have the majority of decision making authority concentrated nationally or regionally. The Program should then make adjustments to the contributing sub-programs (i.e., Hydropower, CRP, PRD, and Science Centers) to achieve that goal. The current split between primarily regional control in some programs (e.g., Hydropower, PRD, and Science Centers) and primarily national control in others (e.g., CRP) seems to produce more confusion and frustration than it does benefits.
 - National office should provide additional assistance to regions that have not historically received much CRP funding for fish passage. This assistance should focus on helping regions develop partnerships and processes to increase the likelihood that proposals from the region will receive funding.
 - Continue to find and create opportunities for CRP staff and Hydropower staff to communicate with each other about their work and to look for complementarities.
 - Assign someone in each region (perhaps on a rotating basis) to serve as a liaison between CRP and Hydropower (and possibly PRD and Science Centers, too). Duties could include organizing coordination meetings and calls for staff from the respective divisions/units to share information and make plans.
 - Develop a standardized nationally consistent approach to documenting and tracking commitments of NOAA staff resources written into hydropower fish passage prescriptions.
 - The agency should consider developing a set of core criteria for prioritization, to which regions could add additional criteria, as needed for their particular purposes. Having national core criteria would provide the basis for a consistent national assessment of priority work.
 - Review CRP project selection criteria and consider placing greater weight on the NOAA-identified priority level of the watershed that it is in. It seems that in the current approach, the importance of watershed priority is overly minimized (i.e., swamped) by the numerous other criteria.
- **Question 3: How do we better incorporate a “watershed” approach into high priority fish passage habitat restoration?**
 - Observations: When the stars align and multiple fish passage projects in a watershed can be undertaken in a concerted manner, it is possible to achieve significant conservation gains. Investing time and resources in partnerships seems to be one of the most important determinants of when and where the stars will align.
 - Strengths

- The program has demonstrated success in supporting and building partnerships to lay the groundwork and identify opportunities to take action when the time is right. NOAA has been able to help diverse stakeholders come to the table and get on the same page and be ready to act in a concerted manner.
 - Hydropower and CRP staff seek to apply the best available science when designing and selecting projects, and in some cases program staff work with researchers to advance scientific knowledge and fill data gaps.
 - Hydropower and CRP staff recognize the importance of PRD staff for identifying and requiring actions to benefit Endangered Species Act-listed species under NOAA's purview.
 - Some regions (e.g., GAR) have made exemplary efforts at coordination in support of the watershed approach, going so far as to establish cross-division teams to develop watershed plans for multiple priority watersheds.
- Challenges
 - Relicensing opportunities are not synchronized so it is difficult to coordinate relicensing activities throughout a watershed when those activities are spread over years or decades.
 - The repeated submission of annual FFO proposals from partner organizations working in watersheds where CRP is willing to make a multi-year watershed-level commitment seems time consuming and necessary for both parties.
 - Coordination across all divisions of NOAA that can and should contribute to protecting and restoring effective fish passage is not consistent across regions and appears to need improvement in all regions as well as nationally.
- Recommendations to address issue
 - CRP could set aside funds from each year's appropriations for on-going projects and next-step projects in watersheds where they have decided to make a sustained effort. Collaborative discussions between CRP staff and partners could determine what will be accomplished and how many dollars to add under the existing cooperative agreement each year.
 - Leadership of NOAA CRP, Hydropower, PRD, and Fisheries Science Centers should review organizational capacity and set appropriate expectations for cooperation among all the divisions/units with a role to plan in promoting and securing fish passage.
 - Other regions should follow the example of regions that have coordinated across divisions and should work internally and with partners to develop integrated watershed restoration plans.

- **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: See also responses to Questions 2 and 3.
 - Strengths
 - The NOAA Fish Passage Program recognizes the importance of restoring watersheds and habitat connectivity as opportunities emerge.
 - Challenges
 - The program appears to be reluctant to use resources to cultivate partnerships in their early stages when the possible eventual benefits are unclear. However, in previous instances, support of such partnerships have been instrumental in accomplishing significant watershed-scale restoration projects.
 - Recommendations to address issue
 - Ensure that staffing levels and workload are balanced such that staff have sufficient capacity to be involved in partnerships, even early stage partnerships, where the interests and motivation of multiple agencies and other organizations may coalesce to enhance the prospects for watershed-scale restoration.
 - Recognize the value of partnerships led by third parties for accomplishing NOAA's Fish Passage goals more cost effectively than the agency can do on its own, or even through agency-led partnerships. In fact, participation in partnerships can help various divisions/units of NOAA work together more consistently and effectively.
 - Support partnerships at various stages of development, from providing seed money to help hire coordinators for nascent partnerships to working closely with well-established partnerships to identify and implement the partnership's highest priority projects.
 - Continue to expand engagement of NOAA scientists and others with expertise in landscape-level conservation design to develop tools for watershed-level and project-level prioritization.
 - Seek to increase staff capacity through project proponent-funded positions to work as project-specific consultation biologist to help with moving hydropower licensing process through and completing Section 7.
 - Work in concert with regional partners (e.g., other agencies, tribes, NGOs) to set priorities within regions. Avoid setting priorities in isolation.
- **Question 5: How can we improve our strategy and structure for evaluating agency-wide fish passage program outcomes?**

- Observations: The development of science-based evaluation metrics would improve NOAA's ability to demonstrate the benefits of their fish passage program and help to establish more clear linkages between conservation investments and outcomes.
 - Strengths
 - The NOAA Fish Passage Program recognizes that the current metric of "stream miles" is an insufficient representation of what they accomplish for fish passage.
 - The NOAA Fish Passage Program has a strong commitment to supporting healthy migratory fish populations and to documenting the contributions of their activities to achieving fish passage.
 - Challenges
 - Outcome-based performance metrics require years of detailed pre- and post-project data collection. This type of study is time consuming and expensive.
 - Only one science center is investing base funding in knowledge needed to substantiate fish passage prescriptions at hydropower projects.
 - There does not appear to be strong external pressure from the Office of Management and Budget driving NOAA to adjust its reportable metric for fish passage. Without this external pressure, it is difficult to overcome organizational inertia and sustain the effort needed to change metrics
 - Performance standards for downstream passage effectiveness are not specified and monitored on all projects.
- Recommendations to address issue
 - Consider making additional requirements to monitor downstream passage effectiveness at fishways.
 - Hire one or more post-docs at each science center to work on fish passage investigations and to help design a more meaningful approach to performance metrics.
- **Question 6: Within our program activities, what is the most effective balance for investing in implementation and monitoring and evaluation?**
 - Observations: Determining this mix is a perennial challenge across natural resource agencies and other conservation organizations.
 - Strengths
 - CRP is developing a database that will allow the program to make better use of the monitoring data gathered from the projects they have funded. Allowing them to learn how to improve future projects.

- Program managers and scientists have worked together to develop a Monitoring and Evaluation Framework for NOAA's Fish Passage Program.
- Challenges
 - Decisions about balancing implementation with monitoring and evaluation are difficult because there is pressure to "get things done" and often not much patience for the methodical and systematic scientific work that must be done to learn how to do things better.
- Recommendations to address issue
 - Identify knowledge gaps where the effectiveness of particular restoration techniques for particular species are not well understood. Invest in thorough scientific investigation of these techniques. These investigations should be designed, conducted, and analyzed by scientists. Repeat each study across multiple sites to determine if the results can be generalized and if there are any easily measured indicators of ecosystem response that can be used for future monitoring. Then, move on to the next knowledge gap. While not quick and easy, this approach will allow for the accumulation over time of valuable scientific knowledge about the effectiveness of fish passage techniques. In other words, spend more on well-designed and focused scientific investigation to address specific questions of interest and less on collecting monitoring data that may never be looked at or used.
 - Avoid implementing fish passage solutions that have not been fully evaluated for effectiveness in a rigorous scientific manner. If an approach seems promising, but has not been thoroughly evaluated, invest in studying it thoroughly before implementing it. Previously-implemented fish passage solutions for which the uncertainty about their effectiveness is the greatest should be prioritized for additional monitoring and evaluation.
 - Consider selecting several metrics identified in the Monitoring and Evaluation Framework as trial or pilot metrics to use for investigating the feasibility and value of having a nationally consistent set of metrics other than 'stream miles opened' for evaluating fish passage program outcomes.
 - Write decision tree-like standards into FERC license conditions as was done at the Willamette Falls project for downstream passage. Conditioning language should specify that the licensee must monitor effectiveness and that if fish passage techniques don't meet the specified standard, then adjustments must be made to the fish passage apparatus until the standard is met.
- **Question 7: What are steps we can take to improve our outreach to ensure we are effectively communicating the importance of fish passage?**

- Observations: Communicating the value of the fisheries resources that the fish passage program helps to conserve and restore is essential to maintaining and building support for the program. To be most effective communications should be clearly branded with the national brand of the program and have a consistent look-and-feel regardless of what part of the fish passage program they originate from.
 - Strengths
 - Many partner organizations and members of the public are interested in and recognize the value of fish passage. Moreover, the NOAA Fish Passage Program is recognized as a leader in fish passage and as the holder of essential authorities to require fish passage.
 - National Partnership Engagement effort regarding fish passage seems promising for working with national-level partners more effectively.
 - Because of NOAA's Section 18 authority for hydropower licensing, partners, including hydropower project proponents, are motivated to engage with the agency to achieve mutually agreeable license conditions.
 - Challenges
 - Lots of venues/tools for communicating about CRP. Also lots of different stakeholders with different interests. Don't see a strategic or coordinated way of sharing the story. Seems like lots of random acts of communication rather than intentional and directed.
 - NOAA may not always signal their interests clearly enough when meeting with partners and stakeholder.
 - Protected Resources staff and Hydropower staff are often not in the same place, not attending the same meetings, and Hydro staff do not have authority to speak on behalf of Protected Resources – this can lead to NOAA getting shut out of ESA-related negotiations (because hydropower people come across as seeming equivocal)
- Recommendations to address issue
 - Develop a communications plan. Take a less scattered approach to communication about the program.
 - Recognize that in many cases the most important communicators about your work are partners. Make it easy for partners to access the information they need to communicate about your contributions and accomplishments. Seek input from partners about what their needs are to assist them with their outreach efforts.
 - Intentionally develop communication strategy for upcoming projects. Use it to gather input on plans and to build consortiums.
 - Sponsor and support funders' forums to encourage communication and coordination among those who may support projects.

- Articulate and communicate internally and externally NOAA Hydropower vision for each project or set of projects in a watershed

Conclusions:

Integration is challenging. Additional emphasis on program alignment is warranted. For example, identify project that CRP and Hydro can collaborate on. Recognize that partnerships and watershed plans are the catalyst for accomplishing great things. Be skeptical of your own tendency to believe that NOAA's leadership is the cause of success of partnerships. Admit to and work through regional vs. national tension that is affecting the program. Encourage details and exchanges. Focus messages through a strategic communication plan. I would have liked to see more representation and engagement from Protected Resources Division, NOAA Science Centers (both are instrumental in NOAA's fish passage efforts), FERC (because they play such a huge role in hydropower fish passage), hydropower industry. Within CRP, the competitive process is valuable, but does it need to be repeated for projects in watersheds that CRP has committed to (i.e., initial competitive phase and then continued commitment). On-going program review should be integrated into the program's way of doing business. It would be a mistake to just take this report, read it, and then move on as before. Instead, consider how to build this kind of internal (thematic) conversation/dialog into annual program review? There is value in pausing as a program to reflect on progress. Do it more often.

Clearly, NOAA didn't come to panel with a broken program. They deserve credit for trying to refine and enhance their work.

Balance strategic effort with opportunistic flexibility. Staff with some freeboard in capacity are essential for this (i.e., everyone can't be maxed out if you want to be able to jump on or stimulate new opportunities).

More national consistency and standardization across the country would improve program delivery. Nevertheless, allowing for local and regional adaptation is important.

Spend time as a program thinking and talking to one another about the following questions: What are our aspirations? What are we striving for that we have not yet achieved? Recognizing that NOAA Fisheries has achieved a lot and changed a lot in the past 20 years, what do we want to look back on 20 years from now and be proud to say, "We did that!"?