

Culverts as Mitigation

A legislative report in response to ESHB 2524 (2016)

Prepared by the departments of Ecology and Fish and Wildlife - June 23, 2017

Background

In 2015, ESSB 5996 – Concerning Washington State department of transportation projects, was codified in RCW 77.95.185. The statute directs the Washington Departments of Ecology (Ecology), Fish and Wildlife (WDFW), and Transportation (WSDOT) to provide a preference for the removal/correction of local culverts that are a barrier to fish passage as compensatory mitigation for environmental impacts caused by transportation projects. The legislature directed the agencies to develop a framework for encouraging and providing a preference, where appropriate, for this type of off-site and out-of-kind mitigation and to develop a formal mechanism to undertake priority fish passage barrier corrections under city and county owned roads. The statute stipulated that the framework could not delay transportation projects, cost more than current mitigation requirements, or expand current regulations or authorities. The statute identified that this mitigation option is available for public transportation projects.

In 2016, ESHB 2524, the 2015-2017 supplemental transportation budget, directed and provided funding for Ecology to facilitate a process to implement RCW 77.95.185.

Existing Regulatory Framework

Aquatic resources are protected under federal, state, and local regulatory authorities. In most cases, unavoidable impacts to aquatic resources require permits from the U.S. Army Corps of Engineers (Corps), Ecology, WDFW, and the local jurisdiction. These permits generally require compensatory mitigation for unavoidable aquatic resource impacts.

Ecology, the Corps, and the Environmental Protection Agency developed joint guidance on mitigation in 2006 and the federal agencies codified their mitigation requirements in 2008. Though not binding on state or local regulatory authorities, the 2008 federal mitigation rule establishes a preference hierarchy of mitigation options, with permittee-responsible off-site and/or out-of-kind mitigation as the least preferable option. The most preferable options are credits from approved mitigation banks and in-lieu fee (ILF) programs, respectively. The federal mitigation rule outlines several requirements mitigation banks and ILF programs must meet in order to be approved by the Corps. Requirements for ILF programs include, but are not limited to: 1) establishing a separate financial account(s); 2) disbursements from the ILF program account(s) must be reviewed and approved by the Corps; 3) the cost of ILF credits must reflect full-cost accounting, which encompasses costs to administer the ILF program, and costs to select, design, acquire, protect, construct, monitor, manage, and maintain sites in perpetuity; and 4) a method for determining a trading currency. Once approved, the Corps, state, and other local authorities may allow the use of the ILF program to compensate for unavoidable impacts to aquatic resources.

The statute (RCW 77.95.185) directed WSDOT, Ecology, and WDFW to develop and implement a statewide ILF program or other formal means to provide a streamlined mechanism for correcting fish passage barriers as mitigation. A workgroup was convened to explore this option and other potential mechanisms.

Process/Participants

Ecology convened the culvert workgroup in early July 2016. The workgroup met monthly from July 2016 through June 2017 to create a guidance document that provides a preference, where appropriate, for the correction of existing fish passage barriers owned by cities and counties as compensatory mitigation for environmental impacts caused by transportation projects. The workgroup included:

- Lauren Driscoll, Yolanda Holder, Patricia Johnson, Michelle Wilcox, and Caroline Corcoran with Department of Ecology
- Paul Wagner and Gretchen Lux with Department of Transportation
- Dan Doty, Tom Jameson, and Randi Thurston with Department of Fish and Wildlife
- Matt Goehring with Department of Natural Resources
- Jennifer Johnson with Governor's Salmon Recovery Office
- Carl Schroeder with Association of Washington Cities
- Gary Rowe with Washington State Association of Counties
- Rebecca McAndrew (participated in two meetings of the workgroup) with the US Army Corps of Engineers (Corps)

Guidance Document Established

RCW 77.95.185 directed WSDOT, Ecology, and WDFW to develop a framework for encouraging the correction of fish passage barriers owned by cities and counties as compensatory mitigation for environmental impacts caused by transportation projects. The draft guidance in Appendix A is the result of the workgroup's progress. This guidance is intended to assist applicants and facilitate decision-making by Ecology and WDFW when a fish passage barrier correction is proposed as compensatory mitigation for unavoidable impacts caused by state or local transportation projects. The workgroup anticipates this guidance will help applicants who propose to use a fish barrier correction as environmental mitigation to provide adequate information at the start of their permitting process. It will also inform permitting agency staff who will make the decisions on whether the proposed unavoidable impacts are appropriate to be mitigated through an off-site, out-of-kind mitigation. As stipulated in the statute the guidance does not expand current regulations or authorities. However, the guidance does outline the following:

- The elements that agencies should consider when making decisions regarding off-site and out-of-kind fish barrier correction mitigation.
- A series of questions that applicants should respond to in order to streamline the regulatory agencies' decision-making process.
- Types of aquatic resource impacts that would be most appropriate (and inappropriate) to use this type of compensatory mitigation.
- Possible mechanisms for providing fish barrier correction mitigation.

Mechanisms Considered

The culvert workgroup evaluated the following different mechanisms:

ILF program

The legislation directed the agencies to look at developing a statewide ILF program. The potential for a statewide ILF program was considered, but it does not appear to be feasible at this time. This is primarily because a statewide ILF program would be very complex to develop and the ILF program would need significant upfront funding to develop the necessary documents, obtain approvals from the Corps, and implement. Additional complexity comes with the number of agencies that would be involved in its approval and use along with the need to track ILF funds and projects by watershed. The agencies felt that the high costs of developing and managing a statewide ILF program would exceed the limited number of dollars that would be generated through this program.

The workgroup felt that a better approach would be to test the feasibility of this mechanism through an existing ILF program. The workgroup explored whether any of the existing wetland ILF programs (which are generally developed at the sub-WRIA¹ scale) would be interested in including barrier removals as part of their mitigation programs. The sponsors responded that they may be interested, but they needed to know what conditions the Corps would place on them.

There remain several major unanswered questions regarding an ILF program.

- Is the development and management of a statewide ILF program economically feasible?
- Who would be the sponsor (who would run the program and handle funds)? The sponsor must be a governmental agency or non-profit natural resource organization.
- How do you determine the currency of trade between impacts and mitigation of different resource types?
- How do you calculate cost? How do you determine what the mitigation fee will be for a wetland or riparian impact?

Permittee-responsible mitigation

Despite the growing approval and use of mitigation banks and ILF programs in Washington, permittee-responsible mitigation (PRM) remains the predominate type of compensatory mitigation. The culvert workgroup, therefore, considered PRM a viable mechanism for fish passage barrier correction mitigation. The applicant/permittee, which in this case would be a state or local transportation department, implements the mitigation and retains responsibility for its success. There are two types of PRM: Concurrent PRM and Advance PRM.

- Concurrent PRM occurs when the applicant with the unavoidable impacts constructs the mitigation at the time of impacts. This appears to be the most feasible option in the near term. In this case, a local transportation department could correct a city/county fish passage barrier as mitigation. It should be noted that due to mitigation requirements from the Corps, this option would require the applicant to fully fund the barrier correction or at least

¹ WRIA means Water Resource Inventory Areas as established by RCW 90.54

fully fund a specific, tangible, on-the-ground portion of the project that could be described in the required mitigation plan.

- Advance PRM occurs when the applicant completes a barrier correction in advance of any impacts occurring. The transportation department would develop an agreement with the regulatory agencies and would do the barrier correction in advance of the impacts. The barrier correction would generate some type of credit that could be used as mitigation for impacts on future projects by that same transportation department.

Mitigation Bank

A mitigation bank is a possible mechanism for developing barrier corrections as environmental mitigation, but it does not appear to be practical at this time. It is unclear if a sponsor (local government or private entrepreneur) would be interested or able to establish a mitigation bank that generates credit by correction of barriers under local roads. It seems possible that a mitigation bank, could include in its restoration work, the correction of a city or county fish passage barrier as a means to generate credit. The questions of how to value this and how it fits within the credit/debit framework of the bank would need to be resolved with the regulatory agencies that approve the bank.

Challenges

The culvert workgroup identified the following challenges:

Proper vetting of the guidance

Ecology and WDFW recognize that further vetting of this guidance (Appendix A) is necessary. Due to the short timeframe for developing this guidance, Ecology and WDFW did not have time to send it out for review and input internally (within each agency) or externally (outside agencies, tribes, and potential users such as county and city transportation departments). This level of review and input needs to occur prior to implementing this guidance.

Other regulatory agencies with authority for requiring mitigation have not weighed in officially on the guidance. Additional outreach to solicit review by these agencies and tribes will be necessary.

Economic feasibility of a statewide ILF program for barrier corrections

Under federal rules on ILF programs, mitigation must begin within three years of the collection of fees. Due to the limited number and type of impacts that would be anticipated to use this program, it does not appear that enough funding would be generated within this timeframe to complete a barrier correction. With this in mind, it does not appear that a statewide ILF program is economically viable at this time.

Identification of an ILF sponsor

For a Corps-approved ILF program, the sponsor must be either a governmental or non-profit entity with a natural resource management focus. At this time, there are four approved ILF programs, each with limited service areas. Currently, none of these ILF programs have identified fish passage barrier correction as a mitigation option within their ILF program instruments.

Currency for trades

The largest challenge with this proposed out-of-kind mitigation, regardless of the mechanism, is the lack of a common unit of trade. In Washington State, wetlands have an accepted currency method (the Credit/Debit Method, Ecology Publication #10-06-011 and #11-06-015) but there are no universally accepted currency methods for streams. Furthermore, there isn't a scientific basis or method to equate the exchange of functions and resources for this type of mitigation trade-off. For example, how much wetland impact would be adequately addressed with the improved stream functions and processes? Such decisions on trade-offs are necessarily policy decisions, but they should be based in science. Further work is needed to develop a way to quantify the benefits associated with barrier correction to support development of an out-of-kind exchange model that supports these resource trade-offs. In the absence of an established method for this model, potential users of this mitigation approach would need to make their proposal to regulators on a case-by-case basis and justify how the benefits of the barrier correction compare to the environmental impacts.

Generating enough funding for a removal

In addition to the difficulty of determining a trading currency, one also has to assign a cost or fee to the trade. Barrier corrections are very costly and these costs will likely far exceed the amount of mitigation money that could be shifted from a qualifying transportation project. Information from WSDOT indicated a cost range for culvert correction from \$937,000 to \$8,784,906 for recently constructed barrier correction projects on state highways.

Given the type and scale of unavoidable impacts that would be appropriate to mitigate in this way, it is unlikely that a single mitigation project could completely finance a fish passage barrier correction. We anticipate that the mitigation fees would be pooled to generate enough funding to fix a barrier or the mitigation fees would contribute supplemental funds to a grant funded project. However, several obstacles exist with this approach.

1. Most grant programs do not allow the mixing of restoration funds and mitigation dollars. They specifically do not allow mitigation dollars to serve as match. One possible solution would be to discuss the potential of allowing mitigation dollars to serve as match for salmon recovery projects involving barrier removal.
2. Corps requirements may be a big limitation. The Corps cannot accept payment of fees in lieu of mitigation on an ad hoc basis. In order for applicants to simply pay a fee that will be consolidated with other mitigation fees to fix a barrier, it would need to be established as a Corps-approved ILF program.

Finding a pilot project to test the guidance

This is a new process and applicants will need to take a risk to try something new and unknown. Thus far, it has been difficult to identify appropriate projects (impacts and barriers that need to be corrected). The Association of Washington Cities (AWC) and Washington State Association of Counties (WSAC) reached out to their memberships to solicit a pilot. WSDOT also consulted their

project engineers for a possible pilot. However, no opportunities for a pilot project emerged before the conclusion of the workgroup process.

Engagement with the Corps

In most cases the Corps will need to agree with this form of mitigation. Participation by the Corps in the culvert workgroup was limited due to staff turnover and workload. It should be noted that under the federal mitigation rule, which identifies a hierarchy of mitigation types in the following order: mitigation banks, ILF programs, and finally permittee-responsible mitigation. Off-site and out-of-kind PRM falls at the bottom of the hierarchy. This results in a conflict of mitigation preference between the state and federal agencies. An approved ILF program is given preference, but the approval process for a new ILF program can be lengthy (at least three years), particularly due to current staff shortages at the Corps.

Not all Barriers are known

The state needs a better inventory of barriers. All WSDOT stream crossings have been evaluated for fish passage statewide and many cities and counties have conducted inventories as well, but significant gaps remain. More complete inventories of fish barriers would help to identify opportunities for mitigation and help establish the value of removing a given barrier.

Recommendations

Contingent on resources the following actions are recommended:

Further vetting of guidance

There are three distinct groups that should review and provide input on this guidance before it is ready for implementation: regulatory agency staff (local, state and federal), tribes, and state and local transportation departments.

While Ecology provided a copy of the draft guidance to the Northwest Indian Fisheries Commission (NWIFC), there was no opportunity to have a briefing prior to this report being written. Additional outreach needs to occur with NWIFC and other tribes to get feedback on the feasibility of this approach and the appropriateness of resource trade-offs.

Evaluate feasibility of incorporating fish barrier correction mitigation into existing ILF Programs

The workgroup does not recommend pursuing a statewide ILF program at this time. This is due in part to the large upfront investment and ongoing management costs to operate the ILF program. It does not appear that an ILF program would generate enough funds on its own to operate the ILF program without financial support. Due to the lengthy process to develop a new ILF program, we recommend working with existing ILF program sponsors to identify how fish barrier correction mitigation might be incorporated into their existing programs.

Finding a pilot project to test the guidance

The workgroup recommends testing the guidance with a pilot project(s). A real world example is necessary to explore how currency tradeoffs could occur. A pilot would also be useful to test the clarity of the guidance and identify areas for improvement. Since this is a new process, Ecology and WDFW have limited capacity and resources to devote to this outside of their existing permit processes. Therefore, if more than one pilot project is proposed, additional staff resources would be necessary.

The AWC and WSAC should conduct outreach to cities and counties in order to solicit pilot projects in order to provide a realistic test of the guidance.

Ecology and WDFW encourage cities or counties to submit pilot project proposals to test the use of this guidance. Both agencies support the use of this guidance and if pilot projects are proposed they will coordinate with federal agencies and tribes during review and implementation

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OPERATIONAL DRAFT
Fish Passage Barrier Correction Mitigation
Interagency Guidance Document

INTRODUCTION

A. Background

In 2015, the Legislature passed Senate Bill 5996 (RCW 77.95.185) directing the Washington Departments of Ecology (Ecology), Fish and Wildlife (WDFW), and Transportation (WSDOT) to provide a preference for the removal/correction of city and county owned culverts that pose barriers fish passage as compensatory mitigation for environmental impacts caused by transportation projects. The legislature noted that the Fish Barrier Removal Board (FBRB) and other entities could help identify specific priority locations where correction of local barriers would provide a net resource gain over traditional compensatory mitigation. The legislature directed the agencies to develop a framework for encouraging and providing preference, where appropriate, for this type of off-site and out-of-kind mitigation and to develop a formal mechanism to prioritize fish passage barrier corrections under local roads.

This interagency guidance document (guidance) outlines the decision-making framework and some considerations that Ecology, WDFW and WSDOT (hereafter referred to as the agencies) will use to determine if a fish barrier correction project is appropriate to serve as compensatory mitigation for particular unavoidable impacts from a transportation project. The agencies may update this guidance to provide clarification based on lessons learned. For appropriate projects, this guidance describes three possible mechanisms to implement this type of mitigation. The agencies acknowledge that other mechanisms may exist or emerge and will be considered if proposed.

Please note that if a project needs authorization from a Federal agency, such as the U.S. Army Corps of Engineers (Corps), that Federal agency may require different or additional compensatory mitigation for impacts to aquatic resources. Early coordination with the Corps will be necessary to ensure that federal mitigation requirements are met.

B. Agency Authority

The Washington Departments of Fish and Wildlife and Ecology have the regulatory authority to require or recommend compensatory mitigation for unavoidable impacts to aquatic resources for the State of Washington. Authority for state agencies to recommend or require compensatory mitigation is granted by the following state and federal rules and regulations:

- Federal Coastal Zone Management Act (33 U.S.C. Section 1251 et seq.)
- Federal Clean Water Act (16 U.S.C. Sections 1451-1464, Chapter 33)
- State Water Pollution Control Act (RCW 90.48)

- Shoreline Management Act (RCW 90.58)
- Hydraulic Code (RCW 75.20)
- Aquatic Resources Mitigation Act (RCW 90.74)
- State Environmental Policy Act (RCW 43.21C)
- Growth Management Act (RCW 36.70(A))

Note: Not all of these authorities rest with each agency.

Federally recognized Indian tribes of the State of Washington possess treaty rights intended to ensure that rights retained under treaty agreements including provisions to hunt, fish, and gather within their usual and accustomed grounds are preserved. Applicants need to contact and work with each applicable tribe when implementing this guidance.

The Washington Department of Natural Resources (DNR) is the steward of 2.6 million acres of state-owned aquatic lands. A DNR authorization is required for all projects located on state-owned aquatic lands. This includes the beds and shores of navigable waters. DNR's general preference is that impacts to state-owned aquatic lands be mitigated on state-owned aquatic lands. However, DNR recognizes that in certain circumstances barrier removal may provide a net ecosystem benefit at the watershed scale even though it is not located on state-owned aquatic lands.

The Washington State Department of Transportation and local transportation departments are responsible for building, operating, and maintaining their transportation systems in an environmentally responsible manner. As such, each has a stake in policies affecting the management of the state's natural resources both as a permit applicant and as an agency of government. State and local transportation departments are committed to using this guidance to direct their mitigation expenditures towards barrier correction options where appropriate and where greater environmental benefit can be achieved with off-site and out-of-kind mitigation.

REQUIRING MITIGATION

This guidance will assist WDFW and Ecology when issuing or commenting on permits, documents, appeals, or compensation agreements for projects that adversely affect aquatic resources. Agencies with permitting authority may require a specific type of compensatory mitigation (e.g., in-kind, on-site, or off-site), if the permitting authority determines that the situation warrants it. Ecology and WDFW will consider fish passage barrier correction/culvert replacement mitigation proposed by state and local transportation departments (hereafter referred to as applicant) using specified considerations listed in this guidance. The applicant must demonstrate to these agencies that the proposed barrier correction project will result in a net gain² to aquatic resources within a watershed.

² RCW 77.95.185(2)(b)(vii-viii)
OPERATIONAL DRAFT
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A. Goal:

The basic goal of compensatory mitigation is to achieve no net loss of aquatic functions within the watershed by offsetting unavoidable losses at the impact site. This guidance is intended to inform applicants and facilitate decision-making by Ecology and WDFW when a fish passage barrier correction is proposed as compensatory mitigation for unavoidable impacts caused by state and local transportation projects.

Human-caused fish passage barriers are a common source of stream degradation. Correction of these barriers provides an opportunity to restore natural, stream processes and improve aquatic functions. The following are some examples of the physical and ecological stream processes that could be restored or enhanced through fish passage barrier correction mitigation:

Physical Processes:

- Fluvial action of water across the landscape influences the physical properties and attributes of aquatic resources. Natural variations in water flows provide diversity in the physical environment, which is important for supporting species and natural communities.
- Movement of sediment, detritus, and large woody material creates and maintains key habitat and functions in the aquatic environment.

Ecological Processes:

- Streams convert organic materials into forms usable by plants and animals. This involves physical and biological transformation of materials and energy transformations and flows (nutrient and carbon cycling).
- Ecological processes operate at a landscape scale to support the distribution of living organisms, their interactions, and the development of natural communities.

B. Definitions:

Aquatic resources means those areas and the biota inhabiting them where the presence and movement of water is a dominant process affecting their development, structure, and functioning. Aquatic resources may include, but are not limited to, vegetated and non-vegetated wetlands, mudflats, deepwater habitats, lakes, and streams.

Environmental impacts or unavoidable impacts means impacts to fish and other aquatic resources that are expected to remain after all practicable avoidance and minimization measures have been taken for a proposed project.

Functions are the physical, chemical, and biological processes that occur in aquatic ecosystems. Different aquatic resources may provide different types and levels of function.

In-Lieu Fee Program (ILF), in this context, means a federally approved program in which applicants with unavoidable impacts to aquatic resources pay a fee to an ILF Sponsor to satisfy and transfer responsibility for their compensatory mitigation requirements for the permits or other project authorizations issued by regulatory agencies. The ILF Sponsor, who is either a governmental or non-profit

natural resource management entity, then uses the fees collected to implement (or contribute toward implementation of) restoration of aquatic resources through removal or other correction of a barrier to fish passage.

Mitigation means actions to avoid, minimize, and compensate for unavoidable impacts to fish and other aquatic resources from a proposed project. Mitigation must be implemented in the following sequential order of preference. Use of the word “mitigation” is comprehensive of all three parts of the following sequence and is not to be considered as synonymous with compensatory mitigation. Complete mitigation is achieved when these mitigation elements ensure no net loss of ecological functions, wildlife, fish, and aquatic resources.

- a) Avoiding the Impact altogether by modifying the project (e.g., design, location, and timing) or not taking a certain action or parts of an action.
- b) Minimizing Impacts by limiting the degree or magnitude of impacts during implementation.
- c) Compensating for Impacts by replacing and providing substitute resources or environments through creation, restoration, enhancement or preservation of similar or appropriate aquatic resource areas.

Off-site means outside of the area from where the impact has occurred. Acceptable off-site mitigation must occur in the same Water Resource Inventory Area (WRIA), basin or sub-basin as the unavoidable impacts, depending on affected functions. For off-site mitigation to be acceptable, it must be demonstrated that greater functions can be achieved off-site than is possible on-site.

Out-of-kind means species, habitat types and/or functions that are different than those at the impact site. For out-of-kind mitigation to be acceptable, applicants must demonstrate that the mitigation will provide an overall net gain for aquatic resources of the watershed.

Permittee-responsible mitigation means aquatic resource restoration undertaken by the project applicant/permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the applicant/permittee retains full responsibility.

Watershed approach means a framework for environmental management that focuses restoration and protection efforts within hydrologically-defined geographic areas to achieve the highest priority benefits, taking into consideration: 1) ecological and physical processes, such as the movement of water, sediment, and wood, which determine the characteristics and ecological functions in a drainage basin (watershed); 2) the extent to which the processes have been altered, which may indicate the maximum benefit potential; 3) areas where these processes can be most effectively restored and protected; and 4) assessing the role compensatory mitigation can play in repairing those processes and restoring aquatic resource functions in the watershed.

PROCESS

Applicants should delineate aquatic resources at risk of impact from proposed transportation infrastructure projects. This guidance only applies to compensatory mitigation required for unavoidable impacts to aquatic resources. Compensatory mitigation may not substitute for implementing all practical avoidance and minimization measures. When unavoidable impacts remain, the project applicant will need to develop a mitigation plan that explains how impacts to aquatic resource area and functions will be adequately compensated. In general, on-site compensation is preferred when the greatest ecological benefits can be achieved on-site or the resource is of high value or limited in the watershed. Critical aquatic resource functions may need to be replaced in-kind. Fish passage barrier correction will provide off-site, out-of-kind compensation for wetland impacts and off-site, in-kind compensation for stream impacts. The fish passage barrier correction will occur in the same WRIA as the unavoidable impacts.

The following considerations are intended to help applicants determine if their proposed project impacts to aquatic resources will be good candidates for fish barrier correction mitigation. Ecology and WDFW are more likely to allow fish barrier correction as compensation for projects with impacts that meet the following, generally acceptable, considerations.

A. Ecology Considerations:

For unavoidable wetland impacts associated with state and local transportation projects, Ecology has identified circumstances where it is and is not appropriate to consider off-site and out-of-kind compensation.

Generally acceptable for consideration:

- Impacts to riverine wetlands
- Impacts to depressional flow-through wetlands
- Impacts to wetlands providing fish habitat
- Temporary impacts
- Indirect impacts
- Impacts to Category III/IV wetlands³
- Less than 0.10 acre total wetland impacts associated with maintenance activities⁴
- Less than 0.33 acre total wetland impacts associated with a linear transportation project

Generally NOT acceptable for consideration:

- Impacts to functions that are critical for replacement (e.g., water storage in areas that are prone to flooding)

³ The Category of wetland should be determined using the Washington State Wetland Rating System: 2014 Update, for either Western Washington, Publication no. 14-06-029, (available on Ecology's website at: <https://fortress.wa.gov/ecy/publications/SummaryPages/1406029.html>) OR Eastern Washington, Publication no. 14-06-030, (available on Ecology's website at: <https://fortress.wa.gov/ecy/publications/SummaryPages/1406030.html>)

⁴ Projects that utilize Nationwide Permit 3 may not be required to provide compensatory mitigation

- Impacts to functions that are critical to the continued health of a WDFW priority habitat and/or species⁵ (e.g., Oregon Spotted frog)
- Impacts to Isolated Wetlands⁶ (closed depressions) that provide habitat for species that rely on fish-free ecosystems
- Wetlands with Special Characteristics⁷
- Category I or II wetlands with habitat scores ≥ 8 pts⁸
- Impacts that occur within the service area of a wetland mitigation bank or ILF Program and could feasibly be compensated using the bank or ILF.

B. WDFW Considerations (for hydraulic projects):

WDFW recognizes that various factors may make it difficult to achieve mitigation within the hydraulic project's affected area and that there are circumstances/situations where fish barrier corrections may achieve equal or greater benefits for affected habitats and fish species. Examples include situations where:

1. There are limited or no appropriate and practicable compensatory mitigation measures on-site.
2. On-site mitigation does not completely address all mitigation requirements for a project.
3. Geological, engineering and safety constraints (public safety, historical, cultural, ownership, durability of action) limit or preclude on-site mitigation options.
4. There are concerns about the long-term viability/durability of proposed on-site mitigation.
5. The project impacts habitat of low suitability and low value of a type that is relatively abundant in the watershed.
6. The proposed fish passage barrier correction will restore scarce or important habitats within the watershed for the affected fish species.

WDFW will consider whether or not a proposed fish barrier correction project is appropriate to serve as compensatory mitigation by comparing the habitat functions,

⁵ Information on Priority Habitats and Species is available from WDFW's website at:

<http://wdfw.wa.gov/conservation/phs/>

⁶ isolated wetland focus sheet:

<https://fortress.wa.gov/ecy/publications/summarypages/0106020.html>

⁷ Wetlands with Special Characteristics should be determined using the Washington State Wetland Rating System: 2014 Update, for either Western Washington, Publication no. 14-06-029, (available on Ecology's website at:

<https://fortress.wa.gov/ecy/publications/SummaryPages/1406029.html>) OR Eastern Washington, Publication no. 14-06-030, (available on Ecology's website at:

<https://fortress.wa.gov/ecy/publications/SummaryPages/1406030.html>)

⁸ The Category of wetland and score for habitat function should be determined using the Washington State Wetland Rating System: 2014 Update, for either Western Washington, Publication no. 14-06-029, (available on Ecology's website at: <https://fortress.wa.gov/ecy/publications/SummaryPages/1406029.html>) OR Eastern Washington, Publication no. 14-06-030, (available on Ecology's website at:

<https://fortress.wa.gov/ecy/publications/SummaryPages/1406030.html>)

suitability and value for the fish species identified at the impact site to those provided by the proposed barrier correction site. Information listed in section D (*Information Needed from Applicants Wanting to Use Barrier Correction Mitigation*) below are critical for this evaluation.

Mitigation considerations and evaluations will always be on a case by case basis.

Generally acceptable for consideration:

- Barrier correction project proposals that improve overall habitat functions, suitability or value for the affected fish species, as those impacted by certain HPA project types/activities in riverine and stream environments (listed below).

Examples of construction or other work that could be mitigated by fish passage barrier correction projects include⁹:

- Permanent loss of riparian habitat from a hydraulic project
- New dredging
- Channel realignment
- Stream bank protection
- Placement of bridge pier or abutment scour protection
- Fish kills caused by a hydraulic project
- Work outside of the approved work window

Generally NOT acceptable for consideration under this guidance.

- Fish barrier corrections that fail to compensate for loss of or impacts to habitats of affected fish species. (For example: a project impacts a key chinook salmon spawning area and the proposed fish passage project provides primarily coho habitat).
- Mitigation proposals to waive fish barrier corrections that the project proponent/applicant is legally obligated to address under Chapter 77.57 RCW.
- Mitigation for transportation projects in marine and estuarine environments. Freshwater barrier correction proposals to address compensatory mitigation requirements for transportation project impacts in marine and estuarine environments will not be considered.

C. Possible Mechanisms for Providing Fish Passage Barrier Correction Mitigation

This guidance identifies the following options for providing barrier correction as compensatory mitigation:

1. Permittee-responsible mitigation - Concurrent barrier correction. This option allows an applicant with approved impacts for a transportation project, to provide a barrier correction as compensation. During the permit application process for

⁹ WSDOT project impacts associated with construction activities that involve maintenance of transportation infrastructure may be more specifically addressed through the Memorandum of Agreement Concerning Implementation of the Fish and Wildlife Hydraulic Code for Transportation Activities, Agreement Between Washington State Department of Fish and Wildlife (WDFW) and Washington State Department of Transportation (WSDOT), dated July 2016.

the transportation project, the applicant would need to identify and provide environmental information to the regulatory agencies on the barrier proposed for correction. Construction of the barrier correction would need to occur at the same time as, or be completed within a year of, the project impacts.

2. Permittee-responsible mitigation - Advance barrier correction.¹⁰ This option requires the barrier correction to be completed at least one full year before project impacts commence. Applicants interested in this option should meet with regulatory agencies during the planning phase for the barrier correction to inform them of the desire to use the correction as advance mitigation. Baseline (pre-correction) information on the barrier would need to be collected and provided to the regulatory agencies during the permit application process for the transportation project. With approval from the regulatory agency, impacts from one (or more) transportation project(s) may be compensated with a barrier correction.
3. In-lieu fee (ILF) barrier correction. State, county, and local transportation project applicants would pay a fee to an approved ILF program to compensate for project impacts, thereby transferring the mitigation obligation to the ILF program. The ILF sponsor would use the fee from that transportation project (and possibly impacts from other road projects) to implement a barrier correction project within the same service area (WRIA or smaller) as the impacts. ILF programs are subject to federal requirements that include, but are not limited to: establishing mitigation fees that reflect “full cost accounting,” and a method for determining a trading currency.
4. Other possibilities could be explored or proposed, such as a mitigation bank.

D. Information Needed from Applicants Wanting to Use Barrier Correction Mitigation

1. Permittee Responsible Considerations – where the culvert mitigation/barrier correction is known at the time of permitting:
 - a) What are the species, habitat types, or functions being adversely affected?

This should identify Hydrogeomorphic (HGM) class(es), Cowardin class(es), Wetland Rating(s)¹¹, limiting factors, stream type, Rosgen Stream Classification. For example, is it a riverine system with a functional nexus to fish passage? Does the wetland provide fish habitat (rearing, refugia)? Is the wetland an isolated (closed) depressional wetland? Are there temporary or indirect impacts?

¹⁰ Refer to the following document for more information on Advance Mitigation: US Army Corps of Engineers and Washington State Departments of Ecology and Fish and Wildlife Interagency Regulatory Guide on Advance Permittee-Responsible Mitigation December 2012, available at:

<https://fortress.wa.gov/ecy/publications/summarypages/1206015.html>

¹¹ This refers to the Washington State Wetland Rating System: 2014 Update, for Western Washington, Publication no. 14-06-029, (available on Ecology’s website at:

<https://fortress.wa.gov/ecy/publications/SummaryPages/1406029.html>) OR Eastern Washington, Publication no.

14-06-030, (available on Ecology’s website at:

<https://fortress.wa.gov/ecy/publications/SummaryPages/1406030.html>)

- b) Are there site specific functions and habitats in the impact area that need to be replaced on site?

This should identify if there are specific functions or species requirements that need to be replaced (e.g., off-channel rearing habitat, large wood in-stream structures, spawning substrate, lamprey habitat, cold water refugia, amphibian breeding, fairy shrimp habitat, water storage).

- c) If both in-kind and out-of-kind compensatory mitigation are available, will the species, habitat type, or functions proposed as out-of-kind compensatory mitigation provide greater value to the health of the watershed than those proposed as in-kind?

Based on legislation (RCW 77.95.185), in-kind must be “most ecologically appropriate means to address project impacts.”

- d) If regulatory agencies determine that fish passage barrier correction would be appropriate compensation for unavoidable impacts associated with a transportation project, the proposed barrier must be within the same WRIA as the project impacts. Barrier correction projects must follow WDFW’s Water Crossing Design Guidelines¹² (2013 or as revised). Additional considerations to use for barrier selection include the following:

- 1) Coordination with any completed or funded barrier correction projects
- 2) The barrier has been identified by the FBRB or other salmon recovery planning process as a priority for correction
Cost per linear mile of stream opened to fish access by the barrier correction
- 3) Habitat quality (field verified linear gain weighted by habitat quality index scores)
- 4) Barrier severity/passability (e.g., partial barriers, total barriers)

- e) How will the proposed barrier correction maintain, protect, or enhance impaired functions or riverine processes, or the critical or limiting functions of a watershed?

This should address as many of the following considerations as possible:

Information about the barrier correction to be considered:

- 1) Describe fish access below the barrier proposed for correction (presence of downstream barriers)
- 2) Distance (in river/stream miles/linear feet) from proposed barrier correction to the next upstream barrier in the system and the distance to the end of fish use

¹² Barnard, R. J., J. Johnson, P. Brooks, K. M. Bates, B. Heiner, J. P. Klavas, D.C. Ponder, P.D. Smith, and P. D. Powers (2013), Water Crossings Design Guidelines, Washington Department of Fish and Wildlife, Olympia, Washington.

Available at : <http://wdfw.wa.gov/publications/01501/>

- 3) Hydraulic modeling to demonstrate proposed extent of floodplain and erosion stability under different flow conditions.
- 4) Provide results or other information from the following, if available:
 - a. WDFW Culvert Barrier and Assessment Survey (2009 protocol)¹³, or other barrier inventory data
 - b. WDFW Habitat Assessment Survey (2009 protocol)¹⁰ or other habitat survey data.
 - c. Any stream assessments (e.g. Stream Visual Assessment Protocol, Proper Functioning Condition Assessment, etc.) that have been conducted for the reach in which the proposed barrier correction is located.
 - d. Habitat Equivalency Analysis (HEA) for the barrier correction.
- 5) Describe the condition of the watershed upstream (and downstream) of the barrier proposed for correction.
 - a. Describe the protection/conservation status of land upstream from the proposed correction.
 - b. In the Puget Sound watersheds, applicants could use the Puget Sound Watershed Characterization to show what the aquatic ecological integrity or local salmon habitats and water flow processes are like in the watershed management unit upstream of the proposed replacement culvert. It can help identify how correction of the barrier may affect upstream processes – justify what the gain will be in upstream function.
 - c. In watersheds without Watershed Characterization data, provide justification for upstream gain in function based on input from WDFW regional habitat biologists, local salmon recovery districts, tribes, and conservation districts.
- f) Will there be any impacts to wetlands or other aquatic resources as a result of the barrier correction project? If so, will the impacts be short term, long term, or permanent?

If proposed culvert replacement project would result in more than 0.10 acre of wetland impact (permanent or long-term temporary) Ecology may consider this a reason not to allow this project as compensatory mitigation for wetland losses.

¹³ This refers to methods/procedures in the Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual, December 2009. Available at: <http://wdfw.wa.gov/publications/00061/>

- g) Will the proposed compensatory mitigation be sustainable in consideration of expected future land uses?

This should be addressed with basis of design or other project specifications (e.g., WDFW's 2013 Water Crossing Design Guidelines¹⁴)

- h) Performance monitoring will likely be required.

2. ILF Considerations - where the barrier correction is unknown at the time of permitting:

- a) What are the species, habitat types, or functions being adversely affected (i.e., project impacts)?

This should identify Hydrogeomorphic (HGM) class(es), Cowardin class(es), Wetland Rating(s), limiting factors, stream type, Rosgen Stream Classification. For example, is it a riverine system with a functional nexus to fish passage? Does the wetland provide fish habitat (rearing, refugia)? Is the wetland an isolated (closed) depressional wetland? Are there temporary or indirect impacts?

- b) Are there site-specific functions in the impact area that need to be replaced on-site?

This should identify if there are specific functions or species requirements that need to be replaced (e.g., off-channel rearing habitat, large wood in-stream structures, spawning substrate, lamprey habitat, cold water refugia, amphibian breeding, fairy shrimp habitat, water storage).

With this approach, the regulatory agencies would need to identify how barriers will be selected, how to quantify the benefits, and how to track implementation.

OTHER REQUIREMENTS OF AQUATIC-RESOURCE FUNCTIONS MITIGATION

- A. Cumulative unavoidable impacts of mitigation strategies used within the watershed should be taken into consideration, and appropriate measures utilized to avoid or minimize further degradation of the resources. Permitting decisions for unavoidable project impacts may take into consideration the benefits or adverse impacts of other compensatory mitigation, watershed restoration or recovery projects, or impact sites within the watershed, WRIA, or basin.
- B. The permitting agencies shall make the determination of the unavoidable project impacts, the significance of impacts, the type and amount of compensation required after implementing the mitigation sequence, and the level of replacement functions achieved. The permitting agencies shall base their determinations on the best available information, including the applicant's plans and specifications. For large projects with potentially significant unavoidable impacts, determinations may be based on review of studies required and approved by the permitting agencies.

¹⁴ See footnote #11.

- C. Project applicant/permittee pays mitigation costs. Mitigation costs may cover all or part of a barrier correction project. Costs generally include but are not limited to:
- Costs of all surveys, studies or reports required by the permitting agencies to determine compensatory mitigation requirements and if fish passage barrier correction would be appropriate compensation for unavoidable impacts.
 - Planning, design, and construction of barrier correction.
 - Operation and maintenance of mitigation measures for duration of project.
 - Monitoring success of the barrier correction implementation/performance standards.
 - Contingency costs associated with construction changes.