Fish Passage Banking Pilot

Overview Document

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Oregon
Department of
Transportation


WILLAMETTE PARTNERSHIP


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Fish Passage Banking Pilot

Oregon Department of Fish and Wildlife would like to test an approach to Fish Passage Mitigation Banking in Oregon's North Coast. The intent of this document is **to provide information on: 1) the use of mitigation banking to meet the goals of ODFW's fish passage program, 2) the proposed Pilot Project, and 3) the associated tools and supporting documentation** developed for Pilot implementation.

1) A mitigation banking approach to fish passage in Oregon

A mitigation banking approach for fish passage presents an opportunity to advance priority large-scale fish passage conservation and restoration projects and open up significant habitat quality and quantity for native migratory fish.

The goal of ODFW's Fish Passage Program is to provide fish passage at all artificial obstructions inhabited by native migratory fish. Mitigation in lieu of fish passage is allowed if the mitigation project provides a net benefit to native migratory fish (OAR 635-412-0025 (1)[1]). Fish Passage Program staff have expressed interest in developing tools and methods that would improve the efficiency of how they implement Oregon's Fish Passage rules. At the same time, permit applicants such as Oregon Department of Transportation (ODOT), county road departments, and others that encounter high costs of providing fish passage for streams with limited habitat quality and quantity, are looking for a more predictable, transparent and cost-effective process to ensuring they meet their obligations for fish passage.

In 2012, with support of staff at ODFW, ODOT, Willamette Partnership and The Nature Conservancy began work on a package of tools that would support a pilot fish passage banking program in Oregon's North Coast. Fish passage banking will allow ODFW to steer mitigation from multiple waivers toward fish passage ***banks*** – locations where high priority barriers are removed and significant benefits for fish are created. Banking will also provide ODFW, waiver applicants, and other stakeholders with a more standardized and transparent process to evaluate whether mitigation is appropriate, adequate, and sustainable in terms of meeting conservation goals for native migratory fish habitat in Oregon.

An effective mitigation banking approach to fish passage should:

- Provide greater net benefits for native migratory fish than providing passage at a waiver site;
- Streamline the waiver process for fish passage banking and make approval transparent and defensible; and
- Use ODOT resources more efficiently to provide greater benefit to native migratory fish over the traditional approach.

A mitigation banking approach facilitates the net benefit analysis undertaken by ODFW District Biologists. Under the current system, District biologists use best professional judgment to determine if a single mitigation project is adequate or sufficient to offset a single waiver site. Under a mitigation banking approach, the amount of habitat impacted by a project or created at a bank site is defined in

[1] Oregon Administrative Rule. Oregon Department of Fish and Wildlife. Division 412. Fish Passage. Definitions *635-412-0005* (33).

[1] Oregon Administrative Rule. Oregon Department of Fish and Wildlife. Division 412. Fish Passage. Fish Passage Waivers and Exemptions *635-412-0025 (1).*

terms of credits or debits – units of fish habitat quality and quantity. Use of this "currency" allows a more quantified, objective and standardized comparison between an impact and mitigation site.

With banking, tools are needed to support decisions on "how much" of a bank's credits need to be purchased to offset more than one waiver. Fish passage mitigation banking would employ two key tools: 1) a Net Benefit Analysis Tool that quantifies fish habitat credits and debits, and 2) a Mitigation Banking Instrument which provides the guidance needed to support ODFW in operating a banking program. The descriptions in Section 3 below provide an overview of the tools developed for ODFW's Pilot of fish passage mitigation banking.

2) Objectives of the Fish Passage Pilot

The Fish Passage Banking Pilot Project will be conducted over three years in Oregon's North Coast Basin (including the following 4th- field watersheds Wilson-Trask-Nestucca (HUC 17100203), Nehalem (HUC 17100202), Necanicum (HUC 17100201), Lower Columbia (HUC 17080006), Lower Columbia-Clatskanie (HUC 17080003)). The overall objective of the proposed is to **demonstrate a fish passage banking approach** to meeting Oregon's fish passage requirements implemented through ODFW's existing waiver process.

The specific objectives of the Pilot are to a) rigorously test and refine the Net Benefit Analysis Tool, b) conduct a limited number of mitigation banking transactions, and c) evaluate the potential for implementation of a fish passage banking program statewide.

Objective A: Testing the NBA Tool

In order to use the NBA Tool in programmatic permitting decisions, it needs to produce credible results. The Net Benefit Analysis tool includes a Fish Passage Credit Calculator (Calculator) that quantifies the impact of permitted actions (debits) to fish passage and the benefits of mitigation (credits). In order to evaluate its suitability for use in a regulatory program, the Calculator will be tested in field conditions to determine its accuracy, repeatability, sensitivity and usability.

Field application of the Calculator will take place in the North Coast on sites considered to be representative of the District's geographic and hydrologic diversity. Field data, collected by trained users, will be analyzed to determine the accuracy, sensitivity and repeatability of the Calculator.

Findings from the field testing and statistical analyses of data will be used to recommended changes to the Fish Passage Credit Calculator.

Objective B: Conduct a limited number of mitigation banking transactions

The Fish Passage Pilot will be implemented in Oregon's North Coast Basin, with ODOT as the only sponsor of fish passage mitigation projects. ODFW and ODOT will develop a mitigation bank site by removing a high priority barrier and will use the Net Benefit Analysis Tool to estimate the number of fish passage credits generated at the site. The East Fork of the South Fork of the Trask has been identified as an ideal site at which to create a mitigation bank.

Over the course of the Pilot, ODOT will request that a small number (less than 12) of waiver projects of no more than 0.5 miles in length each be used as debits against the bank. The NBA Tool will be used to quantify debits of waiver sites.

Conditions/Limitations on Bank Use

In order to account for any risk or uncertainty associated with the calculation of credits/debits, and to ensure a net benefit for native migratory fish as a result of these transactions, ODFW and ODOT have agreed to a set of terms or conditions. They are:

1) Each waiver site will use a 3:1 ratio of credits to debits; in other words, every debit will require 3 credits to meet mitigation obligations under the fish passage banking program.
2) Waiver sites will be debited a minimum of 1 credit (e.g. a debit of 0.3 (quality weighted area of native migratory fish habitat) will require 0.9 credits given the 3:1 ratio; 0.9 credits will be rounded up to 1 credit).
3) ODOT will limit the number of waivers debited from the bank to 12
4) Each waiver site will have no more than 0.5 miles of native migratory fish habitat above each culvert.

Objective C: Evaluate the potential for statewide implementation of a fish passage banking program

One of the objectives of the Pilot is to test the potential for implementation of a fish passage banking program statewide. To do so will require that the administrative procedures, as outlined in the Mitigation Banking Instrument, are effective in helping ODFW implement its fish passage program and in achieving a net benefit for native migratory fish.

Field application of the NBA Tool will also take place outside the North Coast to test expansion of the tool to other geographies within Oregon (i.e. sites representing ranges of climate and flow duration; non-forest riparian communities). This will include a build-out of existing GIS data sources previously bound by the North Coast project area to their full statewide extent to evaluate applicability of the Calculator outside the North Coast area and gather information about where alternative GIS data will be needed.

Success Criteria for the Pilot Project

The following criteria will be used to evaluate success of the Pilot Project and to demonstrate t suitability of fish passage banking for statewide application in Oregon.

Net Benefit Analysis Tool Evaluation Criteria

The Net Benefit Tool (Fish Passage Credit Calculator and GIS Application) will to meet the suite of criteria:

- **Accuracy**: Is the Calculator credible in rating a site in terms of native migratory fish habitat quality? To evaluate accuracy, the Calculator scores for each study site will be compared with an independent rating of habitat quality (e.g. ODFW data) and/or assessments of habitat quality as determined by the best professional judgment of ODFW District biologists. Those ratings and/or assessments will be correlated with Calculator scores to evaluate how well outputs from the Calculator match independent assessments of a site's habitat quality.

- **Sensitivity:** To assess impacts or benefit from permitted development activities or restoration projects, the Calculator needs to be sensitive to changes in numeric values for indicators. The data collected from all test sites will be used in a simulation in order to determine if the scores generated for various metrics are sensitive enough to distinguish differences among a series of sites believed to differ in habitat quality.

- **Repeatability:** The Calculator should be repeatable between different users. Data will be collected specifically to determine if three independent but similarly trained testers applying the Calculator to the same five sites produce similar scoring of those sites. To meet the standard of repeatability for the Calculator, the variation among testers must be less than the variation detected among sites.[2]

- **Usability:** The NBA Tool must be user friendly with clear instructions for use. All field testers, and any ODFW and ODOT staff trained to use the NBA Tool, will respond to a series of questions evaluating the usability of the calculator, the GIS application and the associated User's Guide.

Effectiveness of a mitigation banking approach

In order to evaluate the effectiveness of a mitigation banking approach to meeting ODFW's Fish Passage Program goals, the Pilot will need to demonstrate over its three years that it:

Provided a net benefit for native migratory fish: ODFW Fish Passage Rules define Net Benefit as an increase in the overall, in-proximity habitat quality or quantity that is biologically likely to lead to an increased number of native migratory fish after a development action and any subsequent mitigation measures have been completed. Under the Pilot Project, a net benefit will be demonstrated by ensuring that the number of credits (quality weighted miles of native migratory habitat opened up) exceeds the number of debits (impacts to fish habitat). The Pilot will track and account for the number of fish passage credits and debits in a publicly viewable database.

Streamlined the waiver process for fish passage banking and made approval transparent and defensible: A mitigation approach to meeting fish passage requirements will standardize the process for ensuring fish passage requirements are met for both ODFW and ODOT. This should result in an increased efficiency in the use of ODFW staff time and resources to make fish passage waiver decisions. A consistently applied, science-based method for quantifying impacts and benefits to native migratory fish will provide documentation and increased transparency of those decisions. Over the course of the Pilot Project, ODFW staff time for processing both pilot and non-pilot waivers as well as processing time from waiver application submittal to issuance will be tracked to estimate time savings and efficiencies gained.

Used ODOT resources more efficiently to provide greater benefit to native migratory fish over the traditional approach: A banking approach shifts resources from waivers from multiple projects on streams with limited habitat quality and quantity to the removal of high priority barriers that open up significant habitat quality and quantity for native migratory fish.

[2] Elkum, N. and M.M. Shoukri. 2008. Signal-to-noise ratio (SNR) as a measure of reproducibility: design, estimation, and application. Health Serv. Outcomes Res. Protocol 8:119–133.

Mitigation banking provides ODOT with an incentive to invest in high value restoration and conservation of native migratory fish habitat in Oregon. Over the course of the Pilot Project, ODOT will track dollars expended per quality-weighted area of fish habitat opened in the North Coast and other parts of the state to estimate the value of investment in fish passage using mitigation banking over the traditional approach.

3) Tools and procedures to support fish passage banking

There are two main project products for review:
Mitigation Banking Instrument Document: This document describes the rules, standards, and procedures under which fish passage mitigation projects will be identified, funded, operated, maintained and managed (PDF document, 29 pages).

Net Benefit Analysis Tool: The science-based method to quantify habitat quality and quantity consisting of:

- Net Benefit Analysis Technical Report (PDF document, 32 pages)
- Fish Passage Credit Calculator (Excel spreadsheet)
- Customized GIS interface (GIS application) & User Manual (PDF document, 39 pages) – ***both available upon request.***

Mitigation Banking Instrument Document


Fish Passage Banking Pilot Project
Mitigation Banking Instrument

Points of Contact:

The Mitigation Banking Instrument describes how the Fish Passage Mitigation Banking Pilot in the North Coast will be operated. It defines the roles and responsibilities of both ODFW and ODOT including:

- ODOT as a permit applicant to ODFW requesting a fish passage waiver;
- ODOT as a credit developer, generating mitigation credits by providing fish passage at priority barriers; and
- ODFW staff operating the mitigation banking program.

Once signed by ODFW and ODOT, the Instrument will provide the authorization for the Fish Passage Mitigation Banking Pilot to generate credits to be used as mitigation for waivers.

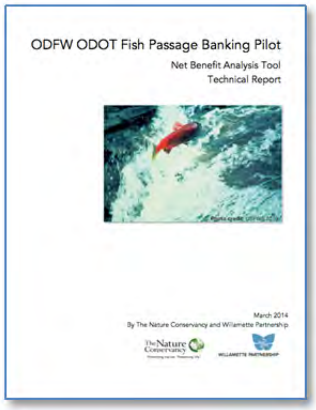
The document also provides information on:

- Mitigation project site selection and eligibility
- Monitoring, reporting and other project management requirements
- Credit accounting rules
- Mitigation banking program management (including guidelines for Instrument Modification, Dispute Resolution)

Net Benefit Analysis Tool

Because fish passage banking allows impacts from multiple waivers to potentially use one mitigation bank, there needs to be a standard procedure to quantify how many fish passage credits a waiver site will need from a passage mitigation bank in order to achieve a net benefit (and conversely, how many credits a mitigation site could provide), a tool (i.e. a Net Benefit Analysis Tool) is required to quantify how much mitigation is needed.

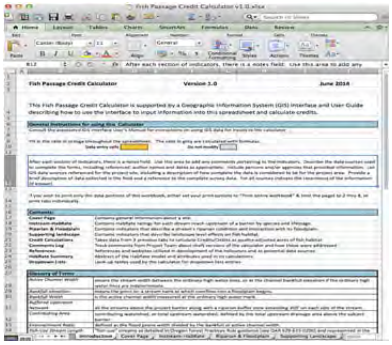
The **Net Benefit Analysis Technical Report** describes the process used to develop the Net Benefit Analysis Tool that (i) standardizes an approach to net benefit analysis for the quality and quantity of fish habitat and (ii) meets requirements of the State of Oregon's fish passage provisions. The NBA Tool includes an Excel spreadsheet (Fish Passage Credit Calculator), a customized Geographic Information System (GIS) interface, and a User Guide that describes how to use the interface to input information into the spreadsheet and calculate credits. The Excel-based Fish Passage Credit Calculator and the GIS interface both require some level of training and expertise to use and apply.



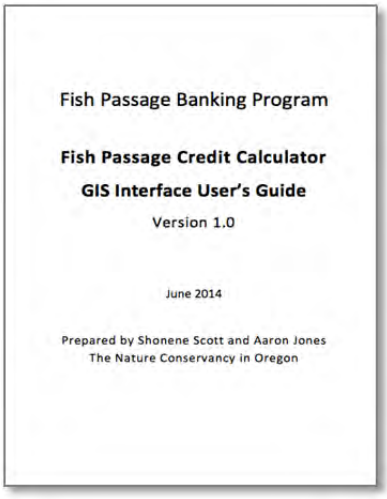
The Fish Passage Credit Calculator:

- quantifies the **amount** of native migratory fish habitat impacted by a project and opened up or improved by a fish passage bank; and
- quantifies or categorizes the **habitat quality** impacted by a project and at a bank site.

It combines these two estimates into "***credits***" and "***debits***" that can be used in a mitigation banking program to ensure net benefit to native migratory fish.



The GIS Application facilitates the collection of information from existing stream-related geospatial datasets. This GIS application can be used by ODFW staff and others with experience in GIS to populate the Excel-based Fish Passage Credit Calculator with values for a variety of indicators of fish habitat quality. The GIS Interface User's Guide document describes the detailed methodology for gathering and analyzing data for each indicator.



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