



# State of Oregon Fish Passage Approvals for Beaver Coexistence Flow Devices – Pond Levelers and Culvert Exclusion Fencing

## Oregon Fish Passage Policy ---

The state's fish passage law (ORS 509.585), administered by Oregon Department of Fish and Wildlife (ODFW), requires owners-operators of artificial obstructions (AO)<sup>1</sup>, which include human-made beaver coexistence flow devices such as pond levelers and culvert exclusion fencing, to notify and submit project design details for fish passage review and approval by ODFW. This document describes the ODFW fish passage plan submittal, review and approval procedures along with desired design criteria, and monitoring and maintenance requirements, as well as best management practices associated with beaver coexistence flow devices.

## Fish Passage and Beaver Coexistence Flow Devices

Beaver coexistence flow devices manage water surface elevations in beaver ponds and discourage beaver activity at culverts and irrigation points of diversion (PODs). These devices include pond levelers, notch exclusion fencing and culvert exclusion fencing among other evolving designs. Pond levelers are used at beaver dams to manage flooding conflicts by controlling the upstream water level associated with beaver dams. In Oregon, beaver dams are not considered AOs (human-made barriers) to fish migration. Beaver and the dams they create are beneficial to fish and their habitats. The dams often provide cooler, deeper water for rearing fish and they create hydrologically complex ecosystems that further benefit aquatic organisms and riparian habitat. Native migratory fish (NMF) can move over, around and through beaver dams. In contrast, pond levelers are human-made devices that may preclude, prevent or delay migration and are therefore considered AOs. These devices should not be designed to provide fish passage through beaver dams and should be designed to minimize fish entrainment while encouraging volitional passage over, around or through beaver dams. A well-designed and maintained pond leveler will minimize false attraction of NMF for upstream migration while also allowing safe downstream (egress) passage should fish enter the device. The NMF species composition and associated life stages present in each waterbody should be carefully considered when selecting a site for a beaver coexistence flow device. Beaver coexistence flow devices may not be appropriate or effective in all waterways and situations. For example, if adult anadromous salmonids or other large-bodied migratory fishes are present, fence spacing requirements to pass these fish may not adequately exclude beaver and thus render the device ineffective.

Beaver exclusion fencing associated with culverts are also AOs and shall be evaluated by ODFW to meet current fish passage design criteria (OAR 635-412-0035 (3)(a)(C)), which states that beaver exclusion devices shall: 1) allow for easy maintenance and debris removal; 2) be maintained, monitored, and cleaned as necessary to provide fish passage; 3) have a minimum clear space between vertical and horizontal members of 6 inches (e.g. fencing mesh size) when only resident trout and/or *Entosphenus* and *Lampetra* species (lamprey) are present; and 4) be approved on a case by case basis in areas with salmon, steelhead, bull trout or other large bodied fish species.

Beavers often build dams on or near hydraulically undersized culverts and these existing structures may not meet current fish passage design criteria under Oregon Administrative Rule (OAR) 635-412-0035 (3)(a). A fish passage trigger is defined as an event that requires the owner or operator of an AO to provide fish passage or alternatives to fish passage consistent with OAR 635-412-0005 (49). A trigger at one AO physically connected to another AO requires fish passage

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<sup>1</sup> "Artificial Obstruction" is defined in ORS 509.580(1) as any dam, diversion, culvert or other human-made device placed in waters of this state that precludes or prevents the migration of native migratory fish.

to be addressed at both connected structures. Thus, the installation of beaver exclusion fencing physically connected to an existing culvert or roadway structure may require fish passage to be addressed at the existing structure. Ultimately, culvert exclusion fencing should be seen as a temporary solution to the issue, while addressing the hydraulically undersized culvert is likely part of a long-term solution.

### Fish Passage Approval Plan Evaluation, Best Management Practices and Design Criteria for Beaver Coexistence Flow Devices:

Pond Levelers should be designed to avoid false attraction of NMF into the device. For this reason, we recommend a design that defuses water flow at the outlet of the structure<sup>2</sup>. Furthermore, we recommend the conduit outlet terminate at or within the existing beaver dam and distribute flow across the crest of the beaver dam. It may be necessary to “notch” or modify the existing beaver dam to achieve the correct outlet configuration and elevation. If an active beaver lodge exists upstream of the dam, care should be taken to ensure that underwater entry to the lodge is not compromised. Conduits of the pond leveler should be at least 10 inches wide. Exclusion fencing of the inlet conduit should be designed consistently with the aforementioned criteria for beaver exclusion culvert protection devices (OAR 635-412-0035 (3)(a)(C)), with a minimum clear space between vertical and horizontal members of 6 inches (e.g. fencing mesh size) when only resident trout, and/or *Entosphenus* and *Lampetra* species (lamprey) are present. Consideration should be given to additional beaver and/or human activity upstream and downstream of the project site that may be affecting water surface elevations and influencing desired project outcomes.

ODFW approval of beaver coexistence flow devices requires monitoring, reporting and maintenance by the owner of the device. Maintenance should be conducted regularly to ensure that structures are cleaned as necessary to function properly, avoid fish entrainment, and provide fish egress. Monitoring shall include reporting conducted post installation and at higher stream flows in years 1, 3 and 5 post project completion. Monitoring reports submitted to ODFW should include photos and text describing fish passage conditions, maintenance activities, and device function at the time of evaluation.

Permanent removal of these devices from waters of the state is required should they no longer be needed or functional (ORS 509.585(4)). Derelict, unmaintained, and abandoned beaver coexistence flow devices can contribute to the environmental degradation of stream and river habitats, and they may become fish passage barriers or cause injury and be harmful to fish.

### How to Apply for ODFW Fish Passage Approval

First, contact your local ODFW District Fish Biologist to confirm the presence of NMF. Contact information for ODFW District Fish Biologists can be found [here](#). Fish passage approval is not required for beaver flow coexistence devices placed in waters of the state that do not contain NMF, as determined by ODFW. Pre-project coordination with your local District Fish and Wildlife Biologists may include a site visit to evaluate site conditions and alternative solutions. From this, ODFW will identify site-specific fish species, life history use, and other site and design considerations during project development. Ideally, project development is an iterative process that takes place well in advance of needed implementation timing. Emergency actions also require approval and will be considered on a case-by-case basis. Private forest landowners should contact their designated ODFW Private Forest Accord (PFA) biologist for specific information and guidance regarding the installation and management of beaver coexistence flow devices. Information on ODFW and the PFA, including contact information for ODFW PFA stream biologists and beaver conservation biologists, can be found [here](#).

Complete an [application for fish passage approval of a beaver coexistence flow device](#) and send to [fish.passage@odfw.oregon.gov](mailto:fish.passage@odfw.oregon.gov). Of particular importance in your application is the signature of the owner or operator, specific location of the device (Latitude and Longitude in decimal degrees), photos of the beaver dam or culvert, a

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<sup>2</sup> The design of effective beaver coexistence flow devices, which allow for fish passage and the persistence of beaver while also mitigating flooding impacts, is an ongoing process with continually evolving techniques. Site specific constraints and circumstances may dictate alternative methods, and such approaches will be evaluated on a case-by-case basis.

schematic drawing of the device indicating inlet and outlet locations for pond levelers, the diameter of any conduit used, and dimensions of the exclusion fencing. If using a pond leveler, please also provide a description of how your device will limit false attraction of fish at the conduit outlet. Once a completed application is received, processing time for ODFW approval may take 3-4 weeks. Project installation shall be implemented during ODFW waterway specific In-water work window, unless otherwise negotiated by ODFW: [ODFW IN-WATER WORK WINDOW TIMING](#). Other state, federal and local permits may be required.

### Further Reading and Information on Alternatives:

**1). Project Beaver Best Management Practices for Pond Levelers and Culvert Protection Systems:**

<https://projectbeaver.org/beaver-management>

**2). ODFW Living with Beaver:** [https://www.dfw.state.or.us/wildlife/living\\_with/beaver.asp](https://www.dfw.state.or.us/wildlife/living_with/beaver.asp)

**3). ODFW’s 3-Year Action Plan for Beaver-Modified Landscapes:**

[https://www.dfw.state.or.us/wildlife/living\\_with/docs/ODFW\\_3YBeaverModLandscapesActionPlan\\_Final\\_20230616.pdf](https://www.dfw.state.or.us/wildlife/living_with/docs/ODFW_3YBeaverModLandscapesActionPlan_Final_20230616.pdf)

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