

## ODFW / ODOT OAR 635-412 Rules Update

### ODOT Recommendations and suggestions on current Fish Passage Rules and Criteria

General pertaining to process: Proposed rules, once drafted and proposed, will need to go to ODOT Legislative Coordinators to go through Financial Impact Assessment, impacts to ODOT business lines, etc. Request this occurs outside of public comment period in front of ODFW Commission Review.

General pertaining to formatting: Reformat the OARS to be more readable, or make a reformatted version available.

#### **Definitions, 635-412-0005:**

635-412-0005 – Definitions - Line 11. Add definition of “Appreciable benefit” to section 635-412-0005.

635-412-0005 – Definitions “Active Channel Width”. Non-mainstem channel features need to be added to reflect true stream function in the reach. Suggested re-word:

"Active Channel Width" is the cumulative width of a stream's channel elements at the Ordinary High Water Elevation within the confining landform. Cumulative bank-full width may be used for non-incised channels when Active Channel Width field indicators are absent or indeterminate.

635-412-0005 – Definitions - "Artificial obstruction" means any dam, diversion, dike, berm, levee, tide or flood gate, road, culvert or other human-made device placed in the waters of this state that precludes or prevents the migration of native migratory fish. Suggested reword:

“Artificial obstruction” means any artificial structure or device within the Active Channel that convey waters of the State and precludes, impedes, or prevents the migration of native migratory fish required for survival and reproduction.” (This includes spawning, rearing, foraging, and seasonal thermal refugia use.)

635-412-0005 – Definitions - "Attraction flow" means the flow that emanates from or near a fishway entrance in sufficient quantity, velocity, and location to attract upstream migrants into the fishway, which can consist of gravity flow from the fish ladder and auxiliary water system flow added in or near the lower ladder. Suggested re-word:

"Attraction flow" means the flow that discharges from the fishway that attracts upstream migrating fish or flow that enters the fishway that directs downstream migrating fish to the designed entrance.

635-412-0005 – Definitions: ““Bankfull elevation" means the point on a stream bank at which overflow into a floodplain begins”. Not all streams have floodplains. Reword as:

"Bankfull elevation" means the point on a stream bank at which overflow into a floodplain begins for non-incised channels.”

635-412-0005 – Definitions – “Bridge” as defined in Bridge clarification doc (2008): “means a set of structural elements allowing a road and...” – The word road is limiting. Assume this also applies to pedestrian/bike bridges, train bridges, etc

635-412-0005 – Definitions – “Bridge” – It is inappropriate in the engineering discipline to classify a 20 ft clear span as the appropriate definition of a bridge. 20 ft is an NBI threshold used to define what types of structures are required to be inspected and included in the National Bridge Inventory.

- The current definition is ignoring open bottomed, arches and single-span structures that are less than 20 ft? These are not classified as “culverts”. How are these types of structures defined, and how are these captured in OARs / Design criteria, etc?

635-412-0005 – Definitions – potential for definition of “Culvert”. There needs to be some definition for a structure that has a clear span of less than 20 feet and does have earthen fill.

635-412-0005 - Definitions– Line 21: Add “or modification” to read: (b) “Major replacement, or modification, which includes:”

635-412-0005 – Definitions - Line 51 “(iv) Replaces any part of a culvert, except ends which become misaligned or eroded and which are replaced to their original configuration;” – Need to define “ends” – Is this 10% of the culvert length? 25%? Or, a single “segment”, regardless of length? Recommend either 25%, or, align with bridge criteria (50%).

635-412-0005 - Definitions– Line 54, 55, clarification: “Makes replacements, repairs, patches, or modifications to an existing culvert that are different than the original configuration and which reduce any level of fish passage for native migratory fish with current access, as determined by the Department, to the culvert.”

- If the repair restores the structure to its original configuration, and does not reduce the level of fish passage compared to the pre - repair action, does this constitute a trigger? (interpreted by applicants as “no”). If yes, recommend editing text in lines 54 and 55 to make trigger action clear. If no, recommend allowing repairs up to 50% that do not extend the design life of the structure.

635-412-0005 – Definitions - Line 43 “Fills or removes over 50 percent by volume of the existing roadbed material directly above a culvert, except when this volume is exclusively composed of the top 1 foot of roadbed material.”

- Paving projects that do not extend the service life of the stream crossing should not trigger fish passage criteria. During these types of projects, the structural integrity of the crossing is not addressed, and service life is not extended. Paving, ADA, and safety projects have avoided areas where they would trigger fish passage, even though the location may be best suited for the traveling public. Recommend removing this section altogether

635-412-0005 – Definitions – “Clear Span” as defined in Bridge clarification document (2008): “means the open distance between bridge elements within the horizontal plane of the channel passing below the bridge. See Figure 3 for a depiction of the horizontal plane of the channel and Figure 4 for measurement examples”. Is there a way to specify if this is based on road or stream centerline in the cases of skew?

- The bridge and hydraulic engineering disciplines define span differently. The Bridge discipline measures span along the centerline of the roadway / bridge structure. The Hydraulic discipline measures span perpendicular to the centerline of the flowline of the hydraulic structure. When the hydraulic structure is oriented perpendicular to the road

centerline the measurements are the same. When the hydraulic structure is on skew these measurements differ. This is described in the ODOT Hydraulic Design Manual as well as in the ODOT Bridge Design Manual. For this document, it is recommended recommend using the term “Bridge Span” and “Hydraulic Span” instead of “Clear Span” depending on what is attempting to be conveyed.

635-412-0005 – Definitions – Line 63 “Emergency” – Need for definition in OARs? Currently referenced once. If definition is warranted, recommend including “as deemed by local, state or federal jurisdictions” or similar.

635-412-0005 – Definitions – Line 77 “Fish Passage Structure”: add “conveyance” to cover constructed or restored channels that use native and or natural materials (e.g. large wood, substrate, etc.).

635-412-0005 – Definitions, NMF Line 136 “Oncorhynchus mykiss -- Steelhead, Rainbow and Redband trout” – If fish passage is required for instances where *only* hatchery produced fish are present, recommend including footnote or including in definition. Of note, hatchery progeny are oftentimes *not* “native” (strains originating from out of state).

635-412-0005 – Definitions – Line 145 “Net Benefit” Reword to include: “means an increase in the overall, in-proximity habitat quality and or quantity at the population scale that is biologically likely to lead to the increased fitness and or number of native migratory fish species impacted by the action”

635-412-0005 – Definitions - Line 145. NBA process - Potential for OAR change, where a reference to “based on current calculation analysis process used in Statewide Priority List development”) or similar. Suggest additional language to current definition of Net Benefit: “means 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. “The Net Benefit Analysis can use the current calculation process as described in the Statewide High Priority Barrier Assessment White Paper to weigh potential benefits to NMF at trigger and mitigation locations”.

635-412-0005 – Definitions - Line 145. NBA process should include climate change projections: Potential for OAR change, where a reference to “based on current calculation analysis process used in Statewide Priority List development”) or similar. Suggest additional language to current definition of Net Benefit to capture habitats value in lens of climate change: “means 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. The Net Benefit Analysis can use the current calculation process as described in the Statewide High Priority Barrier Assessment White Paper to weigh potential benefits to NMF at trigger and mitigation locations. The calculations can also include a score metric for each location including projected habitat conditions resulting from climate change impacts, including water quality, quantity, temperature, and other factors”.

635-412-0005 – Definitions - Line 157 “Roadfill footprint” Perhaps simply state that the footprint includes the roadway prism and all crossings including its supporting elements. This covers everything including rip-rap and fill-slopes.

635-412-0005 – Definitions - Line 178 “Wetlands”: Is there a DSL OAR to be cited?

## **Prioritization, 635-412-0015**

635– 412 – 0015 – Prioritization - Line 222

- Opportunity to add a climate change metric and scoring to barriers as part of ODFW climate change policy. Climate change score could be in addition to existing formulas, and be based on current model projections available through the Pacific Northwest Research Station Climate Change models; [located here](#). Barriers could be assigned scores based on climate change models, where “suitable habitat” (i.e water temperature, quantity, ect) in 2080 projections receive additional points, whereas barriers that have low habitat value based on models receive less or negative “climate change score” value as part of overall equation.

635– 412 – 0015 – Prioritization - Line 223: What is the purpose of “enforcement”? I think this confuses the public and stakeholders

635– 412 – 0015 – Prioritization - Line 225: Recommend rewording to “The priority list shall be based on the needs of native migratory fish at population and watershed scale”.

635– 412 – 0015 – Prioritization - Line 228: As currently written, does not address the future potential of habitat, only its current state. Re-word: “the current or potential quality of native migratory fish habitat which is inaccessible”. Only allowing for the current state is limiting”.

635– 412 – 0015 – Prioritization - Line 237: Professional judgement needs to have some sideboards. The statement is also ambiguous. Perhaps add “interpolate the best available data” including relevant metrics that are considered.

635– 412 – 0015 – Prioritization - Line 243: What is the purpose of this statement and how is “five” relevant?

635– 412 – 0015 – Prioritization - Line 257: Though ideal, 2-years to provide mitigation is not realistic. Perhaps 1-year to propose mitigation to the Fish Passage Task Force?

## **Fish Passage Approval, 635-412-0020**

635 – 412 – 0020 – Fish Passage Approval - Line 264: Add “or off-site mitigation” after existing word “providing”

635 – 412 – 0020 – Fish Passage Approval - Line 270 “If the Department determines,... that native migratory fish are or were historically present in the waters,” (Historic or current fish use – “fish call”)

- Suggest OAR language that allows department to choose to use developed process to determine fish use. A publicly available process / checkbox that includes ODFW decision on metrics used to determine fish use. See flow chart and process developed by K. Nordholm for example of flow chart used to make fish use determinations. Metrics include: Defined stream channel, natural barrier in proximity, connection to known fish populations, drainage area size, drainage area gradient, Anthropogenic modifications, ect. A copy of this draft process is available upon request for discussion.

## **Fish Passage Waivers and Exemptions, 635-412-0025**

635-412-0025, General – Either provide definitions for “Waiver” and Exemption”, or provide high level description in this section. As written, these can be confusing to general applicants on what these are. Process, timeline, identify “who does what” would be helpful.

635-412-0025, General – Include Service area of mitigation (I.e. OWRD Districts, Watershed, HUC, etc)

635-412-0025, General - ODFW shall develop and make readily available a guidance manual that defines and makes demonstrable “barrierarity”.

635-412-0025, Line 316 ODOT supports ODFW District level, or other streamlined process, for straightforward exemptions. Exemptions that are not straightforward should be brought to Task Force for review under current process.

635-412-0025, Line 320 “Net benefit to native migratory fish is determined by comparing the benefit to native migratory fish that would occur if the artificial obstruction had fish passage to the benefit to native migratory fish that would occur using the proposed mitigation. To qualify for a waiver of the requirement to install fish passage, mitigation shall result in a benefit to fish greater than that provided by the artificial obstruction with fish passage. The net benefit to fish determination shall be based upon conditions that exist at the time of comparison.” This statement, or elsewhere in this section, does not address proposed structures that are in poor or critical in structural condition. In the past, the department has interpreted current rules and determined structures in poor or critical condition are not eligible as mitigation opportunities based on condition. Many structures are in poor or critical condition, but do not have plans to address in the near term. More clarity or additional language in this section of the OARs can help applicants that may be proposing mitigation on structures in poor condition.

635-412-0025, Line 320: Include reasons why mitigation needs to have a greater benefit than providing on-site passage. Especially since waivers can be temporary.

635-412-0025, Fish Passage Waivers and Exemptions, Line 315 (general) – Opportunity for Payment in lieu of providing mitigation for emergency culvert repairs. May be appropriate to allow for this type of program in OARs, with details laid out in agreement outside of OARs:

In the case of culvert emergencies, is there an opportunity to set up and allow for financial compensation in lieu of mitigation project implementation conducted by trigger owner? Request department consideration of compensation opportunity on small systems where off site mitigation could be delivered by restoration practitioners, resulting in a benefit to NMF. Potential sideboards:

- Small streams with limited habitat: (< 1 mile of usable habitat, non-ESA listed, moderate or poor habitat quality, etc)
- State sourced funds could be used similar to CRPA compensation fund, where high priority fish passage projects are delivered off the ODOT network.
- Higher priority and more beneficial projects are delivered compared to an applicant shopping for an off-site project that barely meets an NBA.
- Removes time commitment issues to address passage as a result of trigger action. Current timelines difficult to meet due to funding cycles, federal reimbursement, other.

- Could be combined or run similar to existing ODFW CRPA compensation fund / RFP process
- Could be set up as another option to providing mitigation, and not a requirement. Barrier operators could still choose to address passage in other ways (i.e provide passage, implement off-site mitigation through waiver, etc).
- Would need emergency declaration to qualify
- Payment based on simple, transparent habitat calculation similar to 2019 prioritization process. (Cannot be heavily data reliant similar to challenges with North Coast Mitigation bank)
- Same OWRD Basin... simple tracking process to keep funding and mitigation projects in same basin / species

635-412-0025, Fish Passage Waivers and Exemptions (General)

ODFW has indicated that temporal delay in addressing passage at trigger locations may result in “extra mitigation obligation”. Recommend defining how this obligation is calculated (i.e compensation fines, additional mitigation need, ect).

**Fish Passage Protests, 412-635-0030**

635-412-0030, General: Outside of OARS – How does ODOT and ODFW ensure an unbiased DOJ review in instances where DOJ representative serves both agencies?

635-412-0030, General: Please indicate which level of ODFW is this intended to address. (District staff, Program, Task Force, and or Commission)

635-412-0030, General: Include parameters and cause for protests. E.g. Net benefit analysis, compliance with OARS, compliance with OAR design criteria, OARS and or ODFW application of the OAR criteria to inapplicable site, lack of benefit to the species and at what scale (HUC level, population, etc.).

635-412-0030, General: Include a Protest Process. Recommended to start with the Task Force prior to the Commission.

635-412-0030, General: Include an ODFW response timeline.

635-412-0030, Line 386; Recommended additional language “In a situation where a state agency has a protest regarding fish passage requirements, and state level DOJ process is initiated, the ODFW Commission shall be asked to consider DOJ ruling as part of Commission determination” or similar.

**Fish Passage Criteria, 635-412-0035**

635-412-0035, Fish Passage Criteria - General: It would be helpful to have some language that allows for applicants to provide evidence of meeting fish passage by demonstrating:

- Hydraulics within the crossing emulate or are similar to those found within the stream reach.
- Velocities
- Channel roughness
- Depth

- Fish passage conditions overlap with the life-history needs native migratory fish. E.g. spawning migration, outmigration, thermally induced migration, foraging.
- This has been a method of obtaining fish passage approval, but is not clear in OARs for what is required, process, etc.

635-412-0035, Fish Passage Criteria - General pertaining to fish passage AO's on manmade lakes, backwatered from dams, ect:

- Guidance needs to be developed specific to situations where dams and or manmade lakes have drainage facilities and/or backwater influences at the artificial obstruction. Often, the extent of passage / backwater potential is outside of the control of the owner / operator of AO. "When water elevations at the downstream extent of the AO facilitate passage of NMF, structures shall maintain passage conditions pursuant to XX, ect" or similar.

635 – 412 – 0035, Fish Passage Criteria, General pertaining to voluntary retrofits;

- It would be beneficial to clarify language around voluntary retrofits in the OARs. These could still go through engineering / ODFW review prior to construction. Clarification needed that a voluntary retrofit targeting fish passage improvements would not constitute a "trigger" dictating a complete replacement of AO.

635 – 412 – 0035, Fish Passage Criteria, General pertaining to Beavers: Guidance should be developed and incorporated into OARs to explain when a beaver deceiver, trash rack, pond leveling device, or other feature is considered an AO, or a Fish Passage Trigger.

If a beaver dam creates an AO, and a pond leveling device is installed in the location, is the pond leveling device considered a fish passage trigger? Or, does the pond leveling device trigger the beaver dam as the AO?

635 – 412 – 0035, Fish Passage Criteria, General pertaining to restoration of floodplain and wetland habitats; Recommend developing guidance on when and how Fish Passage Triggers are handled in situations where artificial channels are filled for restoration purposes (i.e Stage 0).

635 – 412 – 0035, Fish Passage Criteria, Line 408: This should go the other way as well. 'If the Department finds that fish passage criteria are not applicable to the stream reach conditions, then applicable criteria may be waived'. Example: The roughness and hydraulics naturally occurring in the reach are greater than those in the criteria. If the crossing creates a stable feature that emulates the reach then it should be allowed.

- This seems to address (c). However, it is rarely used by ODFW. Fairly the opposite. Perhaps there should be a petition process for ODFW to consider such.
- (e) State that fish passage structure shall not cause undo upstream and downstream lateral and vertical scour. (g) also include a maintenance requirement

635-412-0035, Line 416, 417; Define expectation. If monitoring is required on all projects, suggest editing current language to indicate as expectation. Suggest editing current language (635-412-0035 (1)(g): "Primarily at sites with little existing site information or questionable design solutions, the Department may require monitoring and reporting to determine if a fish passage structure meets applicable criteria and/or is providing fish passage" to read "~~Primarily at sites with little existing site~~

~~information or questionable design solutions.~~ The department may require monitoring and reporting to determine if a fish passage structure meets applicable criteria and/or is providing fish passage.”

635 – 412 – 0035, Fish Passage Criteria, Line 421: Does this include ‘roughened chutes’ or steepened natural bottomed stream grades that pass underneath a bridge or through a culvert? It is highly advised to call out that these are excluded from this section. Past projects that this section as currently written is intended for intensely engineered features such as ladders and channels associated with water diversions and dams. There needs to be a new section that allows for natural bottomed crossings that may not strictly meet the current criteria.

635 – 412 – 0035, Fish Passage Criteria, Line 433 - 6” Jump heights: Recommend reconciliation with WA and California standards

- When and where does this criteria apply (fishways versus stream sim versus life history needs) Define in OARs, and Develop guidance outside or OARS (design manual) to assist applicants with understanding of expectation.
- Guidance, either in OAR or in design manual, should address sites where stream reaches naturally have steepened sections with jump heights above 6” up and downstream of the project. Steeper gradients in these types of systems often do not allow for a stream simulation or “natural fishway” approach to meet 6” jump heights within reason.
- In steepened stream reaches, jump height criteria should be based on species and life history use. In many cases, providing for 6” jump heights for juveniles may prevent upstream migration of adults due to streaming flow conditions during periods of adult migration. This may be scenario where ODFW District personnel can determine which life stage should be targeted for passage criteria based on population status, limiting life stages, habitat type / availability upstream of the barrier, ect. Fully seeding the stream suggests adult passage should be preference, but could vary by location and limiting life stage (upstream juvenile summer steelhead migration for example). Develop passage criteria specific to adult and juvenile life stages to reference in design manual.
- Line 435: Potential for OARs to clarify when and how the 6” criteria will be applied – Suggest either additional language to current definition of “Fishway” to read “means the set of human-built and/or operated facilities, structures, devices, and measures that together constitute, are critical to the success of, and were created for the sole purpose of providing upstream fish passage at artificial or natural obstructions which create a discontinuity between upstream and downstream water or bed surface elevations. This includes features that span the active channel width, constructed with the intention of providing fish passage and maintaining streambed integrity, including weirs constructed of artificial and or natural materials such as logs, boulders, or other similar structures”.  
Or;  
“This criteria may NOT apply to some features that are constructed for the purposes of providing fish passage and maintaining streambed integrity, provided they are constructed from natural materials, and where the stream profile in the appropriate reference reach has steep (> 3% ) gradients or other physical constraints.

635 – 412 – 0035, Fish Passage Criteria, Line 457: Recommend that “or Road stream crossing structure” be added following “fishway”, or add in applicable section: “passive trash racks are allowed on existing culverts (or fish ways) if set at or above the OHWE, demonstrate a need to maintain infrastructure integrity and safety, clearly demonstrate a benefit to fish passage through the culvert, and have the spacing that follows as presented in the OARs.”

635 – 412 – 0035, Fish Passage Criteria, Line 478: Ascertaining what ODFW considers as allowable parameters for these elements has been problematic. It is suggested that roughened channels, etc have their own section side by side section with or within the stream simulation section.

635 – 412 – 0035, Fish Passage Criteria, Line 501: State that simulation is assumed when a crossing and it’s elements:

- Span the 100-year event or;
- Includes a clear span that meets or exceeds 1.5 x Avg ACW
- Includes a clear span that meets or exceeds an entrenchment ratio (ER) up to 2.2. Clear Span = ER x Avg ACW.

635 – 412 – 0035, Fish Passage Criteria, Line 504 (Or ACW definition in 0005): State that the ACW shall reflect the average ACW found within the reach as controlled by the adjacent landforms and outside the influence of the crossing or other artificial features such as rip-rap, walls, etc.

635 – 412 – 0035, Fish Passage Criteria, Line 530; Please retain this language. If the outgoing tidal exchange is an issue regarding scour and site integrity, there is a reliance on the engineer to design appropriately.

635 – 412 – 0035, Fish Passage Criteria, Line 623; Recommended to add “Upstream and or downstream passage may be reduced or precluded for the purposes of maintenance or construction no longer than the IWWW or times specified by the Department determines that the species life history strategy or fitness does not require it.”

635 – 412 – 0035, Fish Passage Criteria, Line 640; It is recommended to allow the flexibility to use the field with prescribed monitoring. This is important to represent real world passage conditions, durability, and maintenance requirements.

#### **Mitigation Criteria 635-412-0040**

635 – 412 – 0040, Mitigation Criteria, Line 681; Provide reference to guidance / criteria in OAR. It is recommended that this include sideboards including what constitutes enhancement and restoration (metrics?). Also, a formula or ratio is recommended as well. Similar to DSL.

635 – 412 – 0040, Mitigation Criteria, Line 684; Are these defined anywhere? If there are such actions there needs to be something on the ODFW Fish Passage website. Recommend OARs direct applicants to source of these.

635 – 412 – 0040, Mitigation Criteria, Line 688; Reword to include “mitigation completed ahead of a waiver approval will be done at the applicants own risk, and will not sway an assessment of net benefit”.

635 – 412 – 0040, Mitigation Criteria, Line 702; Recommend clarification on need to provide MORE benefit compared to providing passage at trigger location

### **Climate change and 1.5X ACW Proposal**

General question for consideration: Is this proposed change based on biological need and ability of fish to navigate a road stream crossing? Or; is this proposed change in relation to road stream crossing capacity to convey flood flows, and potential changes in watershed systems resulting from climate change projections?

(Consideration For): The ODOT Fish Passage Program agrees that stream simulation approaches often dictate a crossing width greater than measured ACW for a given project. This is a crucial component for stream morphology and process, allowing for bedload and large woody debris to pass through the road stream crossing structure. From a biological perspective, road stream crossing widths can be required to be greater than 1X ACW (or 1.5x ACW), provided a low flow channel is initially installed and monitored over the project life to ensure volitional fish passage is provided.

(Consideration Opposed): A statewide standard of requiring 1.5X ACW on stream crossing structures may not be appropriate for all crossings in regards to capacity and modeled climate change scenarios. ODOT is currently updating the Hydraulic Design Manual to incorporate best engineering practices for sizing stream crossing structures for capacity, and incorporates projected climate change impacts. It is ODOT's preference for ODFW staff to work closely with ODOT designers, engineers, and geomorphologists during project development to ensure crossing dimensions are appropriate for the individual location based on physical conditions and best available data. Recommend aligning with USFS standards of 1.2X, or with WA standards: 1.2X+2).

### **General Pertaining to Bridges**

Clarity on triggers: "...through time makes significant repairs or patches to over 50 percent of the linear length of a culvert or over 50 percent of the structural elements of a bridge"

– How is "50 percent of the structural elements of a bridge" measured? There seems to be many ways this can be interpreted, clarity is suggested.

- "50% of the structural elements of the bridge. Structural elements do not include road wearing surfaces, deck, guard rails, sidewalks, or aesthetic elements. Structural elements do include bridge bents, footings, major sub structure, riprap or other bank and scour protective elements, etc" or similar. 50% is per repair incident, not cumulatively over all time – no way to track this.

Bridge Maintenance – Comment Received, and relates to definition of trigger event on bridges requiring clarity. "ODOT needs the ability to be able to do maintenance on deteriorated timber piles to keep bridges in service and not trigger fish passage. Even if a pile is repaired in place, the repair may be slightly larger than the original pile. Or, perhaps another pile needs to be added. We should not have to replace a bridge simply because we can't do reasonable maintenance on it."

