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To: TFW Policy Stakeholders

From: Fish Habitat Technical Group
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(Eastside tribes declined invitation to participate)

A Conceptual Framework for Conducting an Alternative Protocol Fish Habitat Survey

Under Policy’s Dispute Resolution Process (Stage 1) the Fish Habitat Technical Group (FHTG) met four times in January, 2017 to determine if a joint alternative fish habitat assessment methodology (FHAM) proposal could be developed (see FHTG memo to Policy, December 11, 2016). The meetings began by comparing and contrasting the alternative protocols that were submitted to DNR for independent review (by) January 3, 2017. After extensive discussion detailing three of the alternatives (Conservation, WFPA, WDFW) it became apparent there were commonalities between alternatives regarding a conceptual framework for FHAM. In addition, all members of the FHTG agreed that, in lieu of a FHAM, landowners should retain the ability to identify Type-F/N breaks using the default physical criteria described in WAC 222-16-031, should they choose to do so.

Given time constraints, the FHTG focused on the further development of a consensus conceptual framework for a joint alternative FHAM proposal. This joint framework (Figure 1) does not include specific metrics or threshold criteria which must be informed by Policy, and would require additional time to determine which literature or other science-based support (both current and proposed) should be used. However, the consensus framework, if followed, does meet two main goals as directed by the Board’s motion on moving to a Permanent Water Typing Rule; 1) an overall reduction in electrofishing and 2) a systematic approach to electrofishing that is based on the recognition and identification of “fish habitat” not just fish use. Furthermore, once measurable metrics or threshold criteria are adopted by Policy, this systematic approach to conducting protocol electrofishing surveys will meet DNR’s objective of developing an alternative that is “repeatable, enforceable, and implementable”.

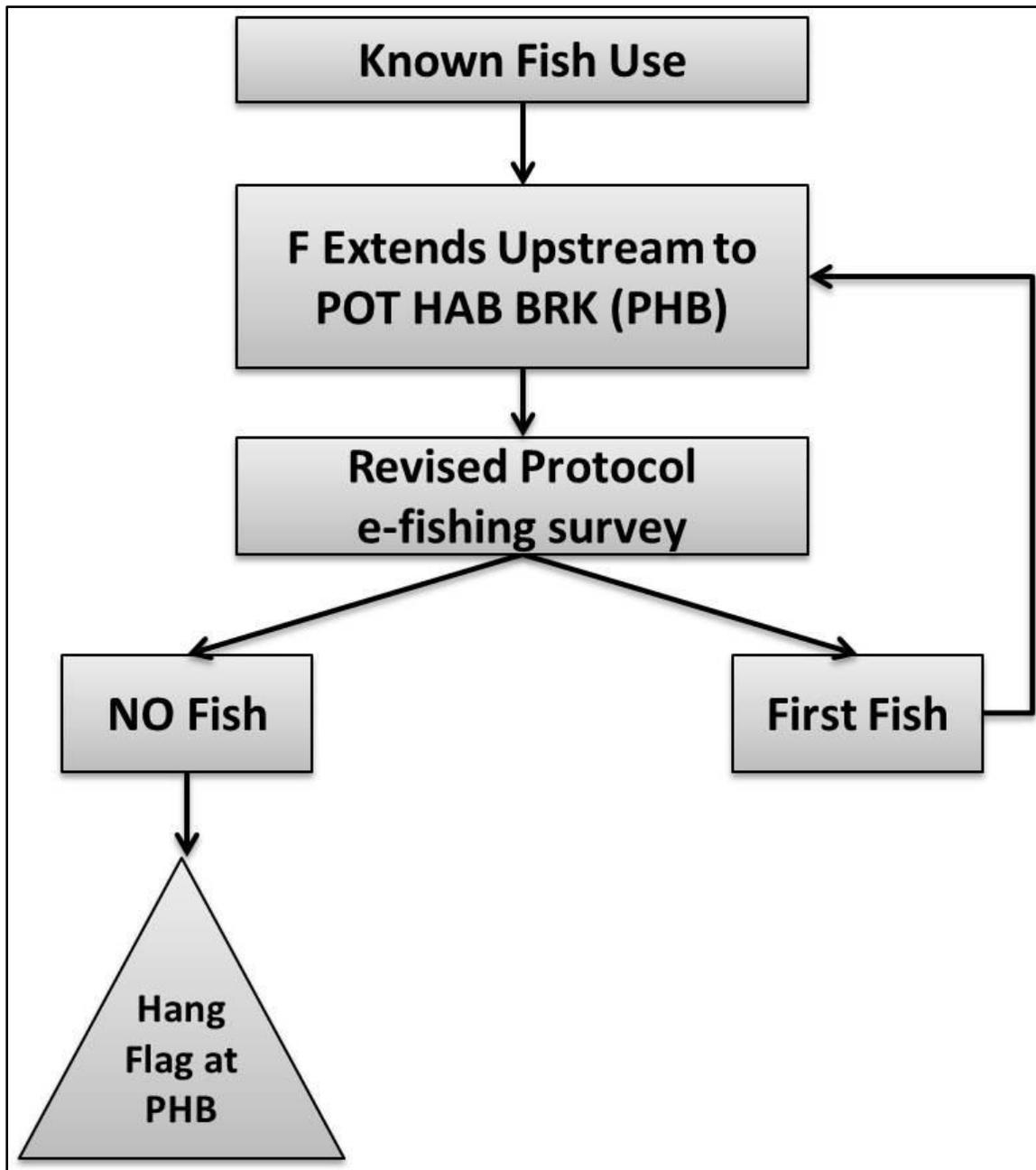


Figure 1. Conceptual framework for a joint alternative FHAM protocol.

Figure 1 illustrates a sequential approach to FHAM that incorporates the identification of “potential habitat breaks” (PHBs). PHBs are defined as permanent, distinct, and measurable changes to in-channel physical characteristics. PHBs are typically associated with underlying geomorphic conditions and may consist of natural barriers that physically prevent fish access to upstream reaches (e.g. steep bedrock chute, vertical waterfall), or a distinct and measurable change in channel gradient, size, or a combination of the two.

The following is a bulletized summary of the joint alternative FHAM method:

- Start at a location of known fish use (e.g. previous information, visual observation, electrofishing detection)
- Proceed upstream to first PHB (without electrofishing)
- Survey upstream from PHB using revised protocol electrofishing survey method
- If a fish is detected above PHB proceed upstream to next PHB (without electrofishing)
- Repeat until no fish are detected above a PHB using revised protocol electrofishing survey method
- Locate the proposed Type-F/N break at the first PHB above which fish were not detected using revised protocol electrofishing survey method

Assuming a protocol survey has been conducted upstream, the proposed Type-F/N break may be located at:

- The uppermost detected fish when coincident with a PHB.
- The first PHB upstream from detected/known fish use.
- The upstream extent of default physical criteria.
- A PHB upstream from default physical criteria, when fish are present.

One essential component of using a PHB protocol method is that it reduces overall electrofishing effort in between PHBs. Stream segments between PHBs are presumed fish habitat once a single fish is detected, eliminating the need to locate the “last” upstream fish.

Primary Physical Channel Characteristics for Identifying PHBs

All members of FHTG contributed to the list of 18 channel criteria that were later delivered to the Policy committee in the form of “18 Questions” by the AMPA. That list came out of a brainstorming session at the last meeting of the the prior “F/N Protocol Technical Group”. This group, however, never had the opportunity to winnow the list down to a set of primary physical criteria that could be used in the field enabling a surveyor to consistently identify PHBs. The FHTG reviewed the list and concluded that there are four “primary” physical channel characteristics to consider when identifying PHBs. They are:

- Permanent natural barriers
- Channel gradient
- Channel size
- Interaction of channel size and gradient

Other “secondary” criteria (e.g. channel morphology/classification, substrate, confinement) can be evaluated to help further refine the identification of PHBs and the subsequent placement of the proposed Type-F/N break.

The presence of permanent natural barriers preventing upstream access by fish does not by itself indicate that fish are not present. There are many documented cases of isolated fish populations located above permanent natural barriers. By contrast, there are permanent natural barriers that do not have isolated fish population located above them, yet may contain upstream channel characteristics that would otherwise appear to be fish habitat. This protocol requires that reaches upstream from permanent natural barriers are surveyed to confirm the presence/absence of fish. Deformable, transient, and/or potentially mobile non-permanent features such as log jams, sediment or wood steps, beaver dams, live root entanglement, etc., are not considered PHBs.

Potential Data Sources that Describe PHBs

Reporting and cataloging of instream channel conditions for existing Water Type Modification Forms (WTMFs) are highly variable. Many WTMFs do not include detailed descriptions of physical stream channel characteristics and/or features that could help define PHBs. However, some surveys are very thorough and include channel gradient and size data, and information on additional habitat descriptors for the stream segments both upstream and downstream of proposed Type-F/N breaks. Data tables submitted through the WTM process may- or may not be a useable data source depending on the surveyor's methodology and the time that the survey was conducted. ID team reports associated with stream typing may also be of use, if recording of such data took place. In addition, CMER's annual/seasonal fish distribution studies, peer-reviewed literature, and unpublished data are other potential sources of information that could be used in this process.

With more time for refinement, the FHTG could use data from these potential sources to help better describe the type and physical characteristics of PHBs that could help support Policy and Board decisions in developing metrics and thresholds for making such determinations in the field.

Remaining Issues

The FHTG did not spend time attempting to resolve any differences in the various FHAM associated metrics and thresholds contained in the individual proposals submitted to DNR by stakeholders, choosing instead to focus on the similarities among conceptual frameworks. Those differences between alternatives do still exist and may still need resolution at the Policy or FP Board level. Some of these issues could be further informed by additional technical work, and some not as they are more Policy than technical in nature.

Below is a list of topics that may require additional consideration by the FHTG, Policy, or others:

- “Fish access” equals or does not equal “fish habitat”?
- Further defining what “likely” means in WAC definition of fish habitat
- PHBs on streams with lateral vs. terminal Type-F/N breaks
- Anthropogenic blockages (e.g. road culverts, RR grades) with/without fish above them
- Recoverable habitat/anthropogenic influence on fish use and distribution
- PHBs for anadromous fish vs. resident fish
- Specific channel metrics (e.g. changes in gradient and/or size) that represent a PHB
- Definition of a “permanent natural barrier”