DPC Study Update

PRESENTED BY JASON WALTER (ISAG CHAIR) ON BEHALF OF THE DPC PROJECT TEAM

CMER MEETING, TUESDAY, SEPTEMBER 24, 2024

WA FPB, November 2019

"Recommend the Cooperative Monitoring, Evaluation and Research Committee (CMER) to develop study designs for the PHB validation, physical characteristics, and map-based Lidar model studies. *Design the studies for cost savings, including the phasing of the studies with eastern Washington to be initiated first, and the possibility and advisability of combining the PHB validation, physical characteristics and map-based Lidar model studies…"*

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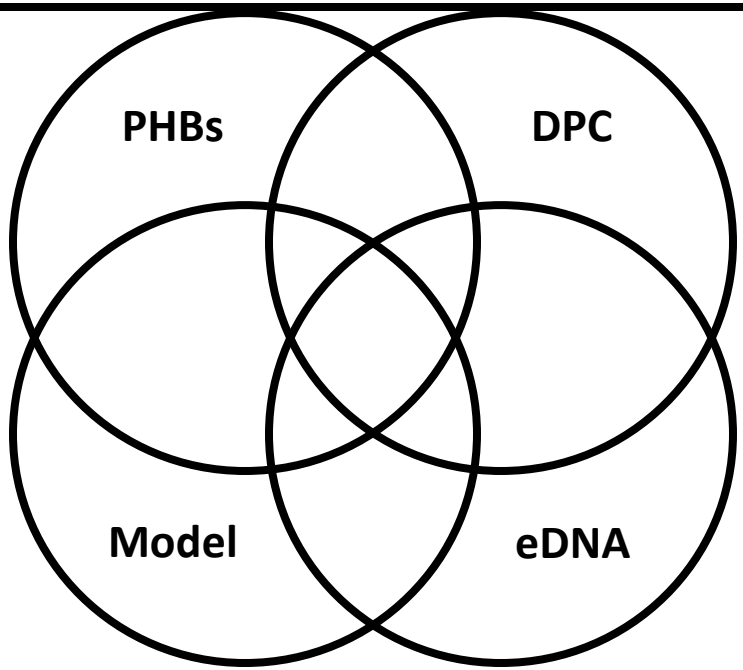
In December 2019, CMER voted that ISAG would be the lead in responding to the Board motion and develop an overall CMER based Water Typing Strategy.

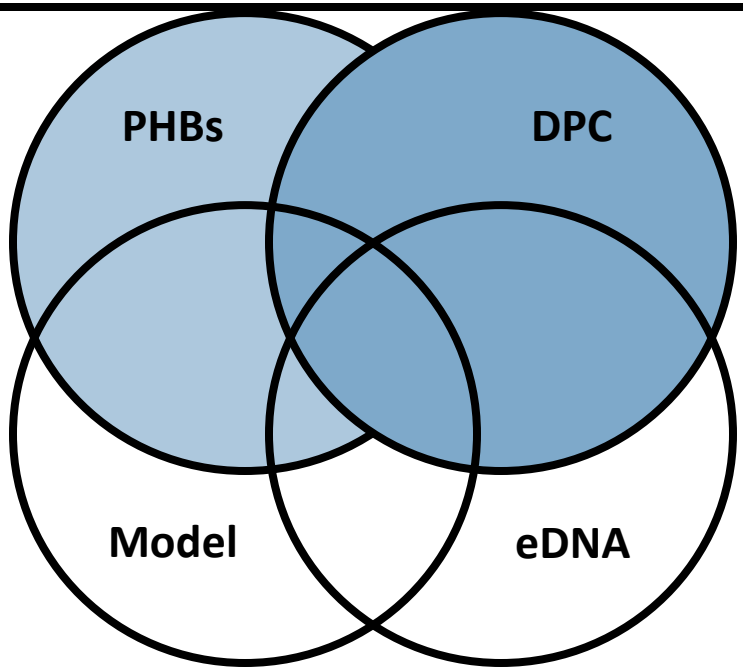
AMP Water Typing Strategy

- Potential Habitat Breaks (PHBs)
- Default Physical Criteria (DPC)
- Map Based LiDAR Model
- eDNA

AMP Water Typing Strategy



AMP Water Typing Strategy

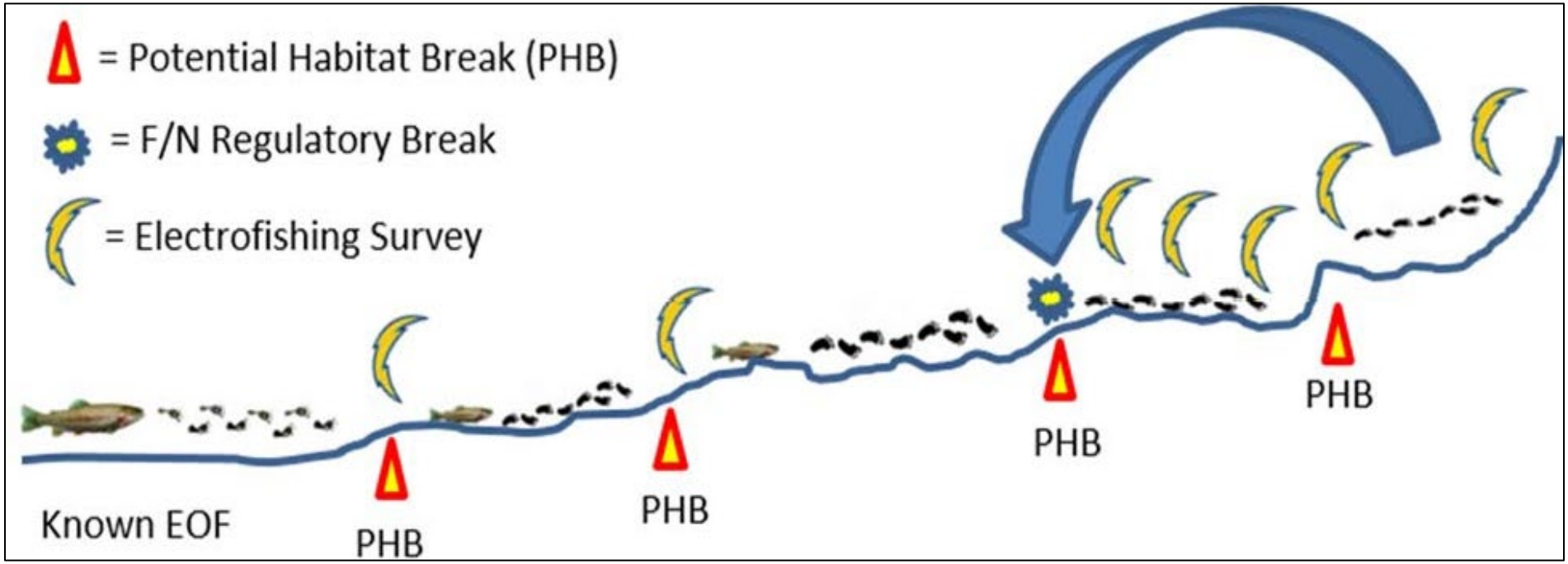


PHBs vs DPC

- **Potential habitat breaks (PHBs):**
  - **Are defined as permanent, distinct, and measurable in-channel physical characteristics that limit the upstream extent of fish distributions.**
  - **Are based upon data that can be collected during a single protocol electrofishing survey and include channel gradient, bankfull width, and both vertical and non-vertical non-deformable natural obstacles.**
  - **Function within FHAM (reliant on fish use information).**

FHAM

- **Fish Habitat Assessment Method… a process used to assess the stream channel to determine the upstream extent of fish habitat for a given stream segment.**
- **Where to "hang the flag"**



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  - **Function within FHAM (reliant on fish use information).**

- **Default Physical Criteria (DPC):**
  - **Describe potentially suitable fish habitat (based on bankfull width and gradient… and differ depending on basin area and region) where field surveys for determining fish use have not been done.**
  - **Are used to determine where protocol surveys are needed to refute the presumption of fish use.**
  - **Provide stopping points beyond which protocol surveys are not needed.**

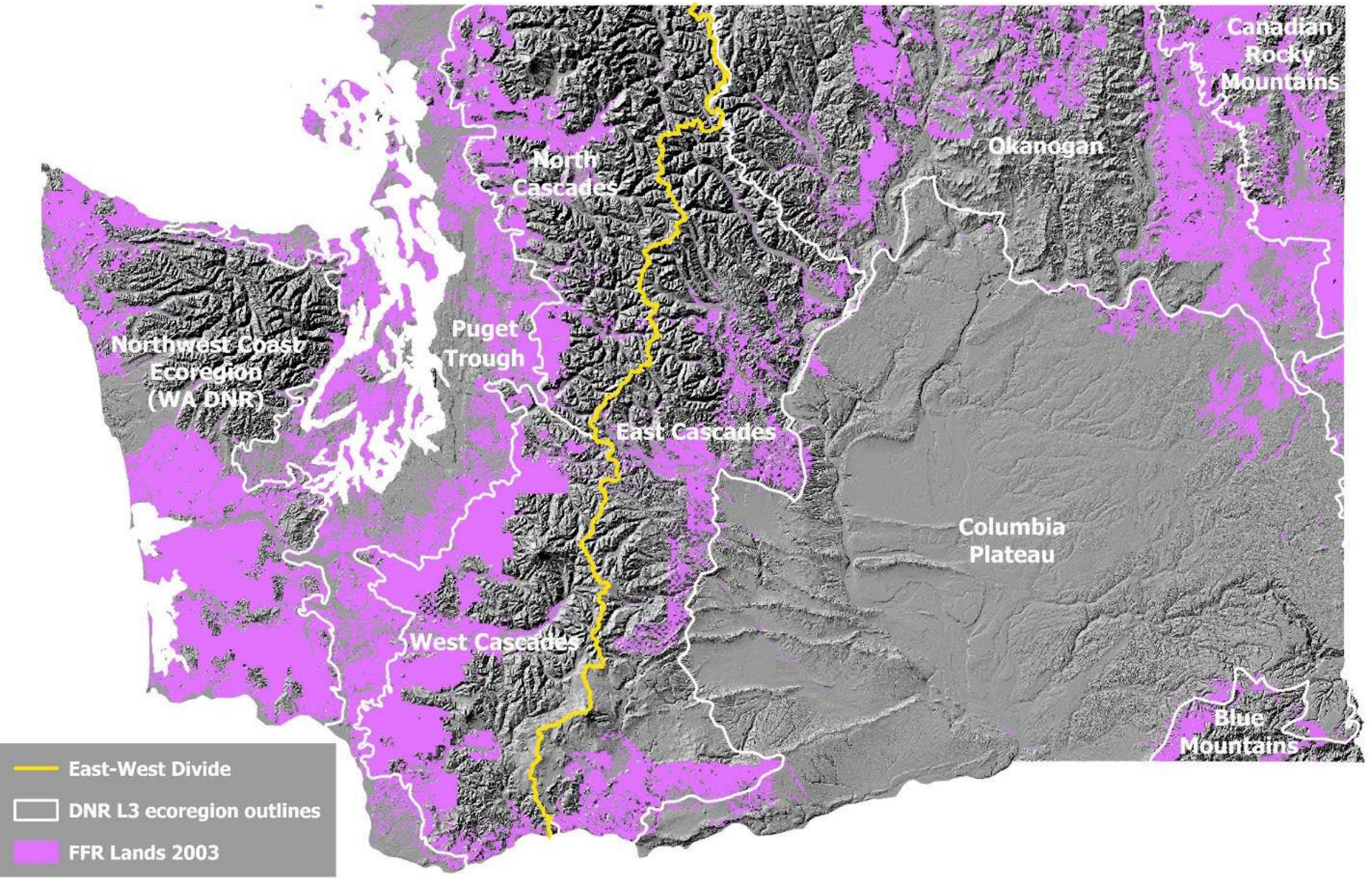
PHB & DPC Study Integration

- **Implementation of the DPC study will be coordinated with the PHB study to take advantage of their shared elements.**
- **The two studies will share sites, and field data will be collected simultaneously.**

- **Maintain separate study-specific elements, particularly RE analyses, that are designed to accomplish project specific study objectives and answer project-related critical questions.**
- **Different subsets of the data will be used in the analyses for the two studies and their results will inform different parts of FHAM and the overall water typing system**

Site Selection & Schedule

Sampling Event	Pilot year (2018)	Year 1 (2025)	Year 2 (2026)	Year 3 (2027)
Spring to early summer		160 eastern Washington 190 western Washington	160 eastern Washington 190 western Washington	160 eastern Washington 190 western Washington
Late Fall/Winter Fixed Panel Sampled All Years (same sites)	27 to test methods	40 E WA 48 W WA	40 E WA 48 W WA	40 E WA 48 W WA
Late Fall/Winter Alternating panel, Sampled Only in Single Season		40 E WA 48 W WA	40 E WA 47 W WA	40 E WA 47 W WA
Reporting	Pilot study report	Annual report	Annual Report	Final Report

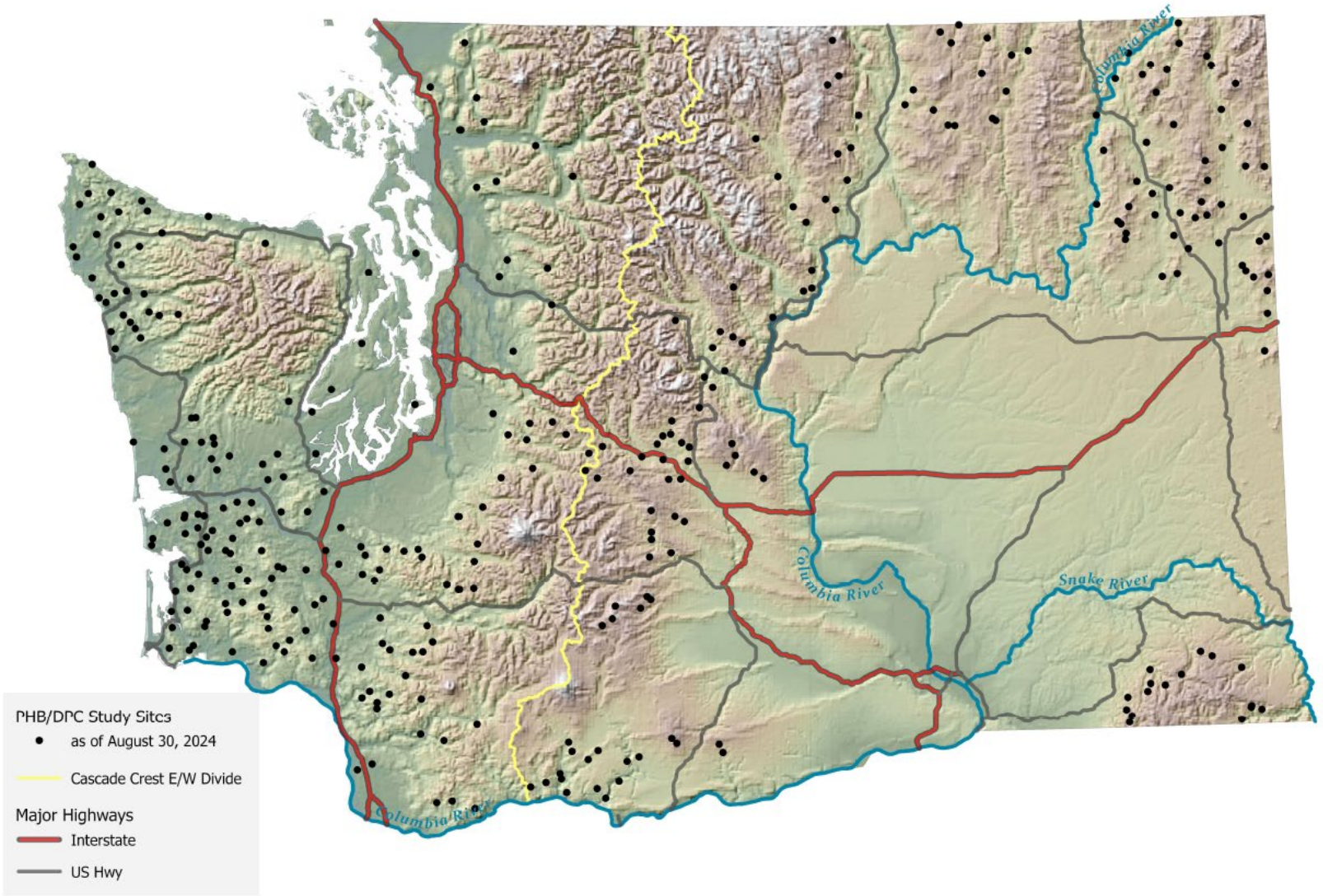

Canadian Rocky Mountains
Okanogan
North Cascades
Puget Trough
Northwest Coast Ecoregion (WA DNR)
East Cascades
Columbia Plateau
West Cascades
Blue Mountains
East-West Divide
DNR L3 ecoregion outlines
FFR Lands 2003

Site Exclusion

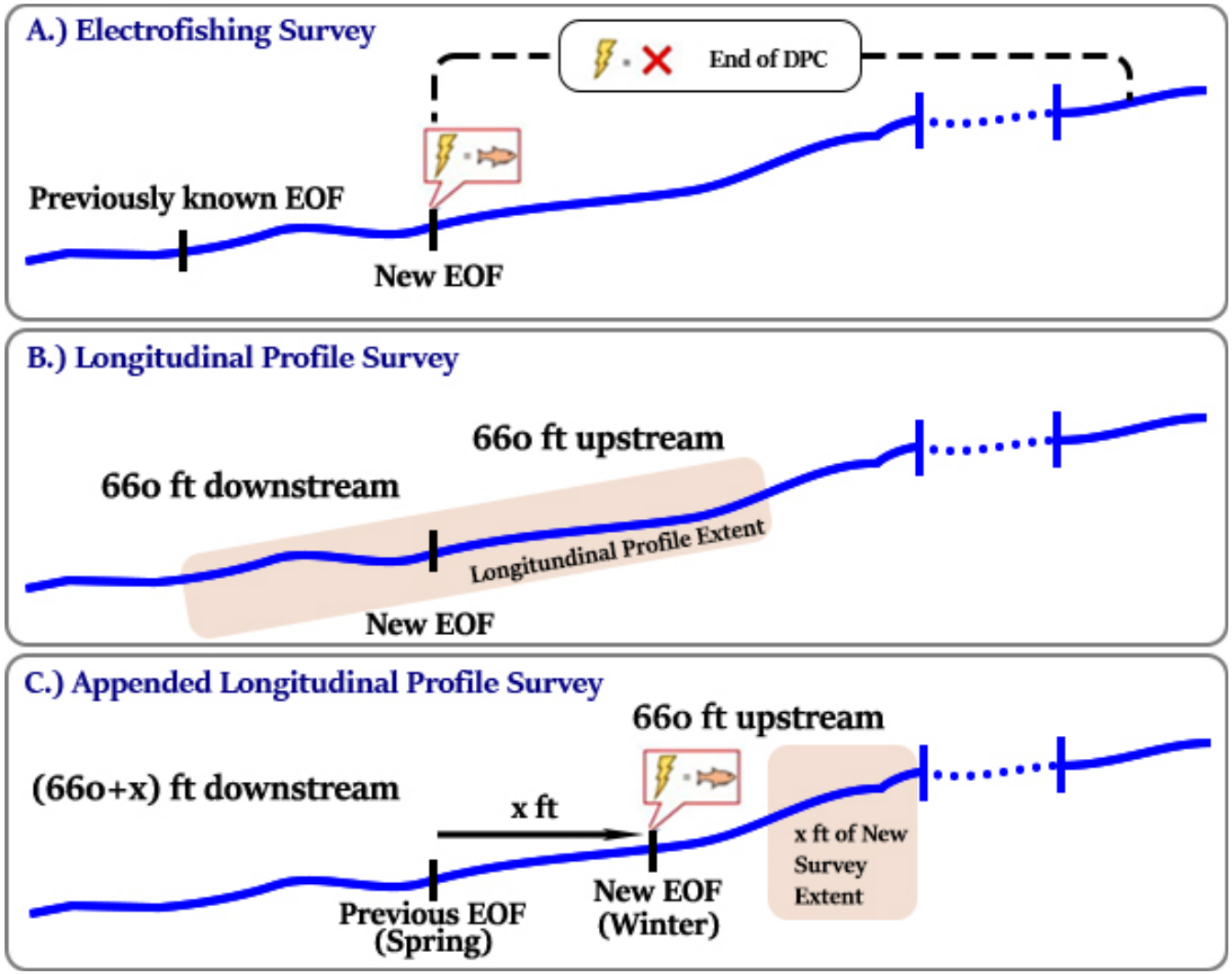
- Anthropogenic blockage
- Recent debris flow (~5 yr)
- No landowner permission
- Lack of safe access
- Other? (documented and approved)

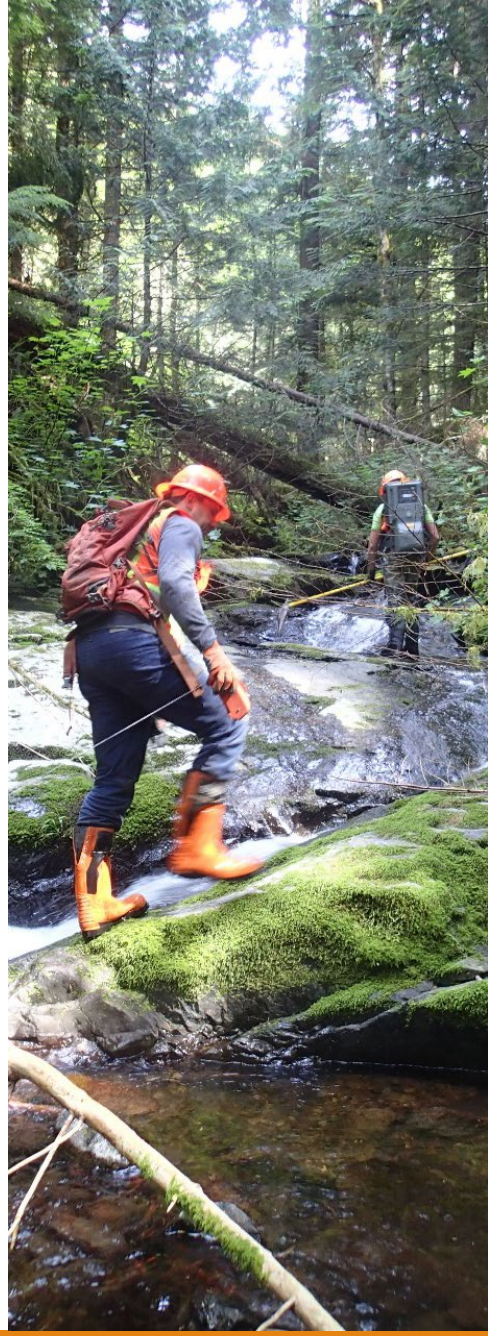
PHB/DPC Potential Study Sites

August, 2024



Field Survey Methods





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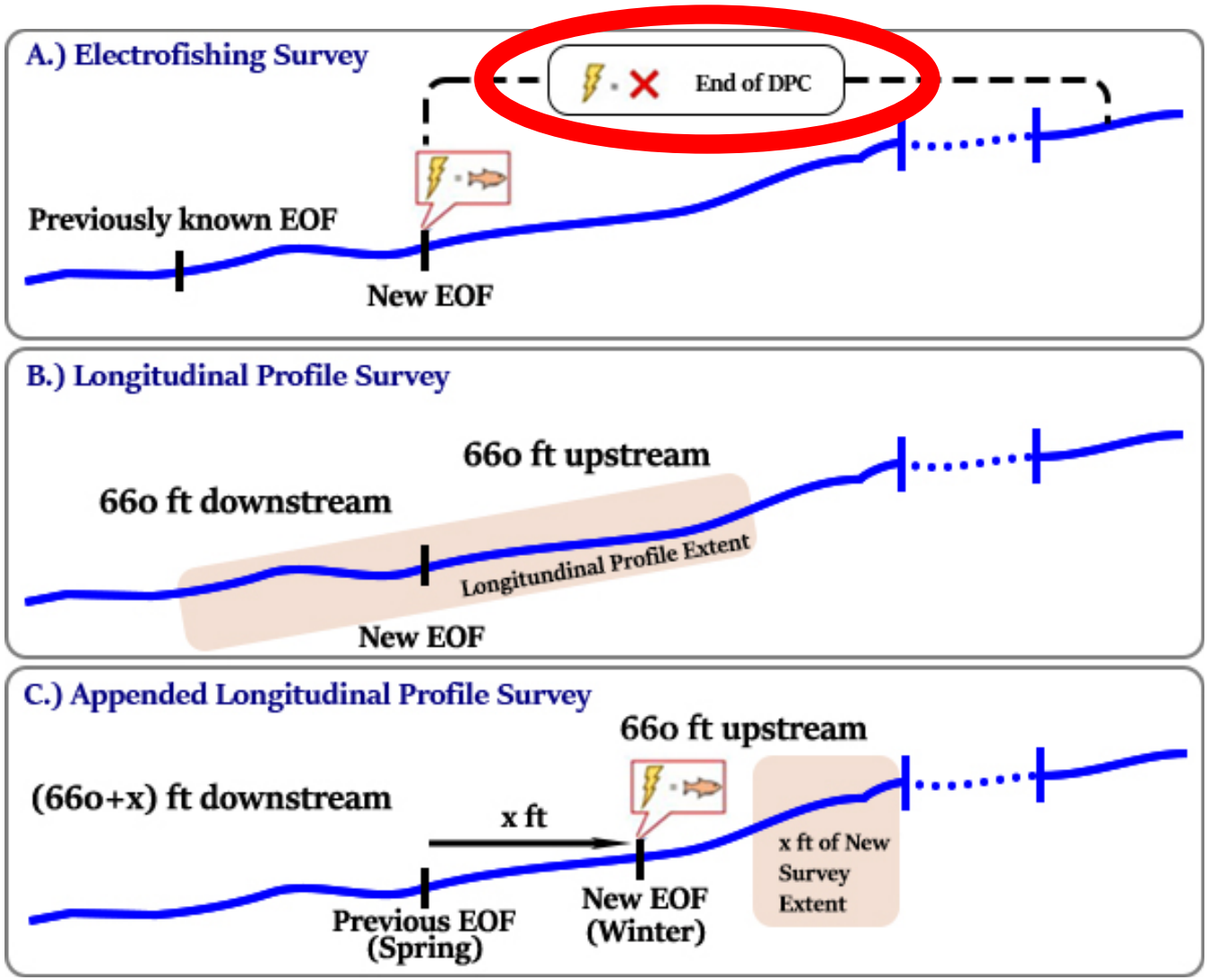

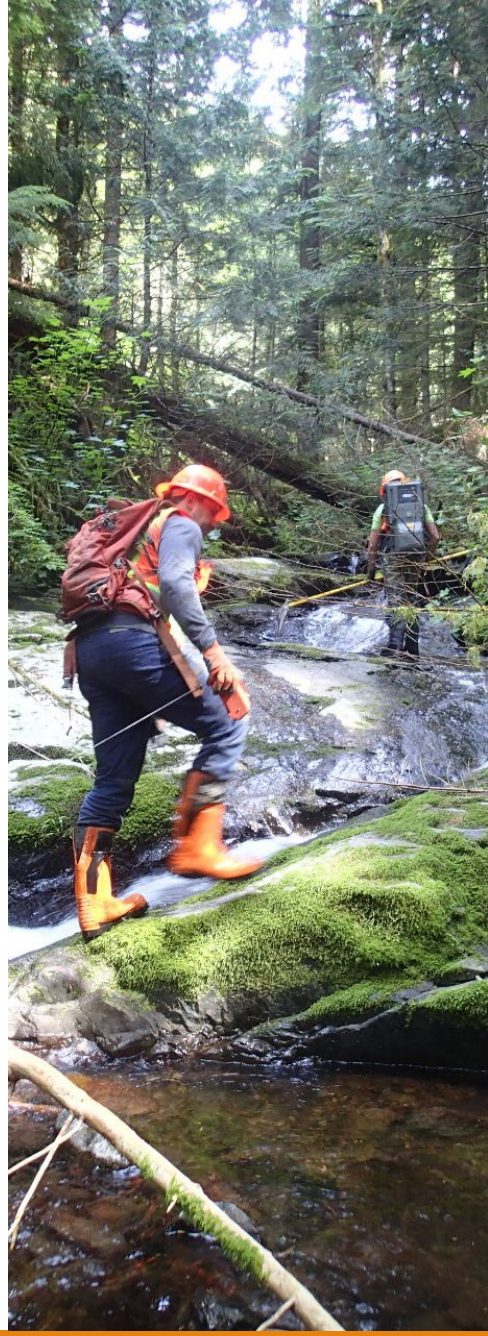

DPC Study Purpose

- **Develop criteria for 'accurately' defining (refining) DPCs as part of a water typing rule.**

- **The DPC study is being designed to:**

  1) Assess the 'accuracy' of current DPCs;

  2) Evaluate whether alternative combinations of gradient, channel width, and basin area (and/or other physical characteristics) are associated with the upstream extent of potentially suitable fish habitat;

  3) Provide insight into how last detected fish points and/or the upstream extent of fish habitat based on FHAM and PHBs relate to DPCs;

  4) Examine if/how DPCs vary across geography and time.

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- **Encompassment:**
  - **A binary variable for each stream that is true when the DPC point is upstream of EOF/EOFH points. It is summarized across the sample population as the proportion of streams for which the DPC point falls upstream of EOF/EOFH point and reflects the degree to which DPC thresholds encompass EOF/EOFH points across the sample population.**

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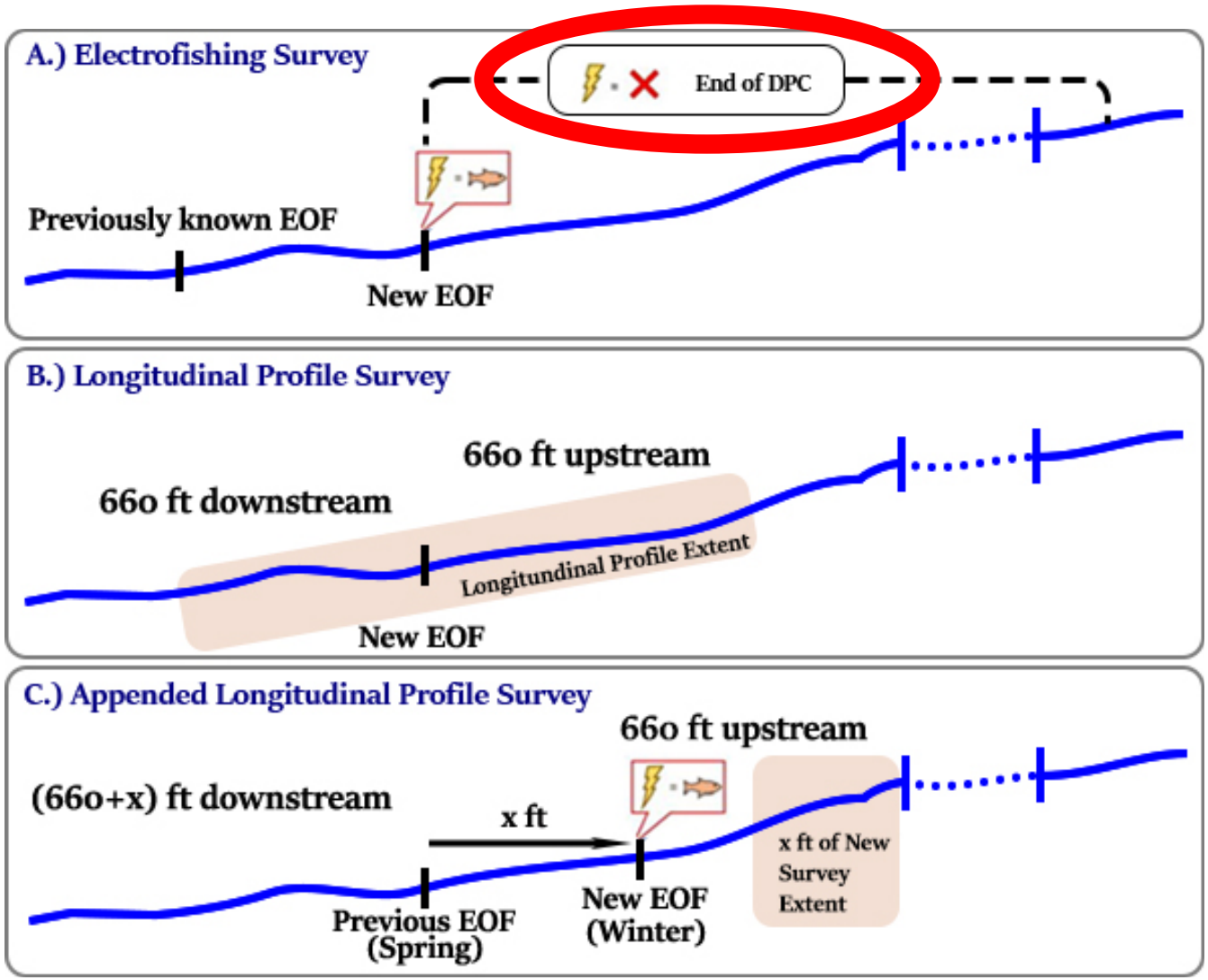
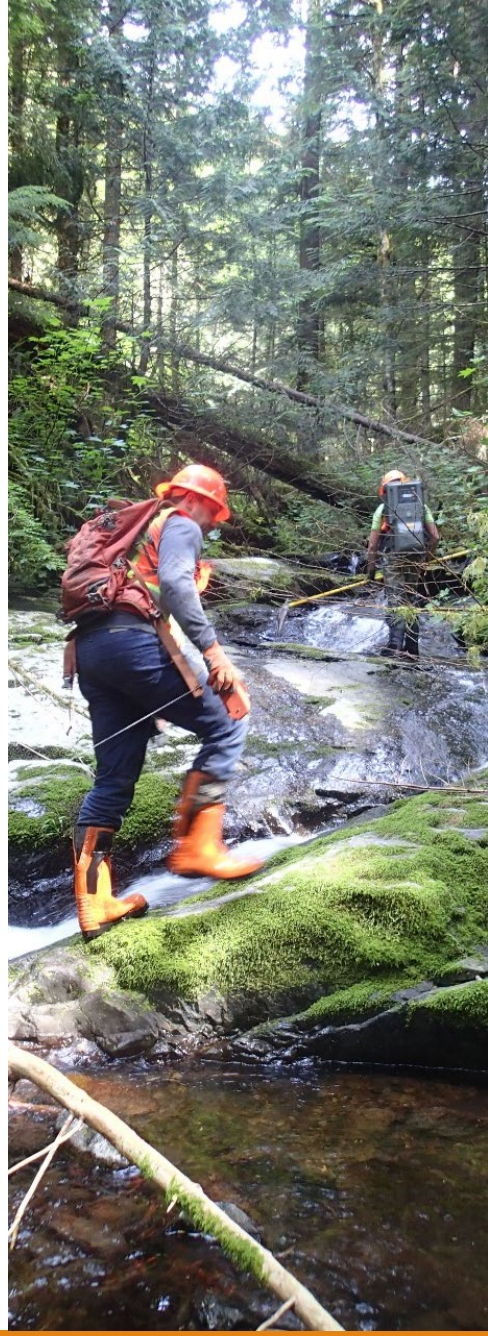
- **Alignment:**
  - **The direction and distances between the end of DPC thresholds for each stream and two metrics of interest: EOF and EOFH, as defined by potential habitat breaks (PHBs). Positive distance values represent EOF/EOFH upstream of DPC thresholds and negative distance values would represent EOF/EOFH downstream of DPC thresholds.**

Field Survey Methods





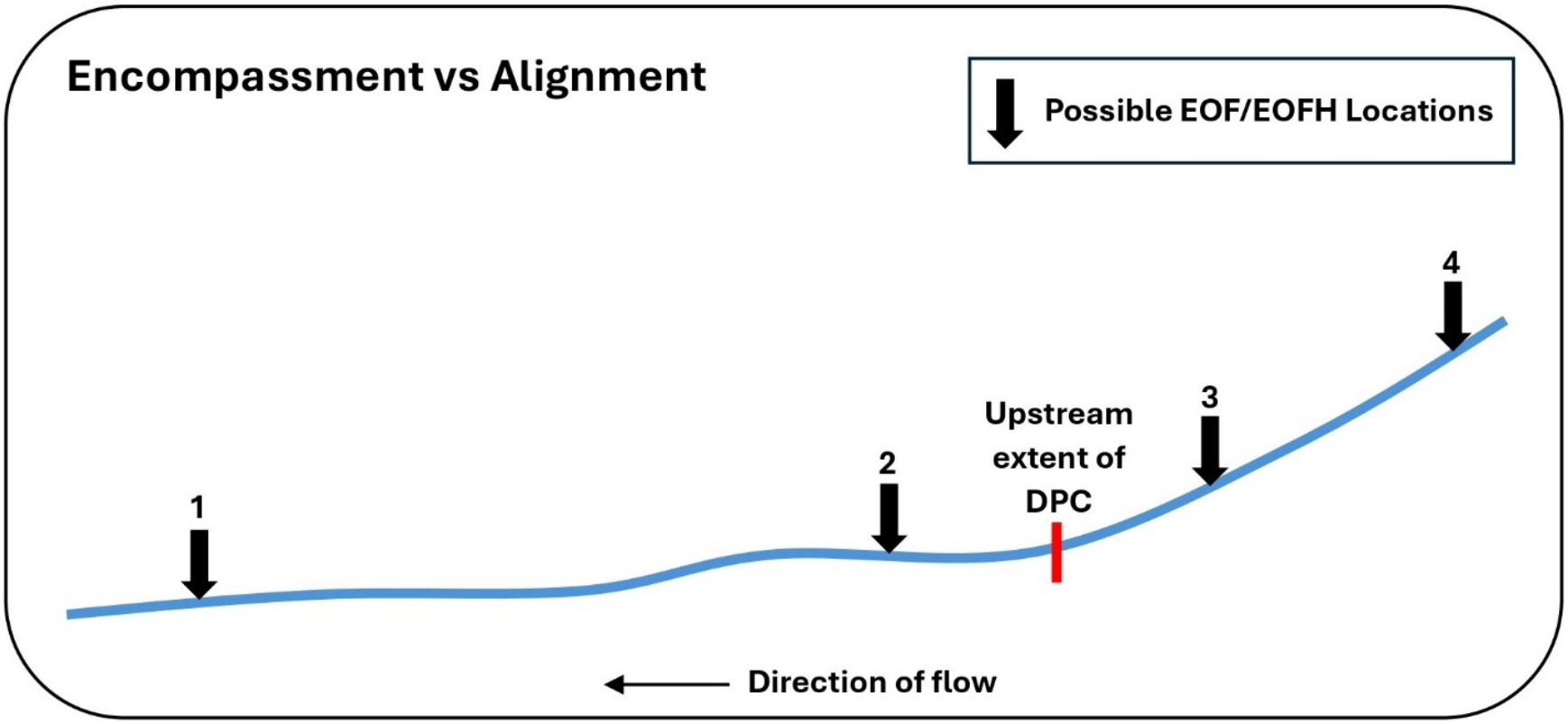
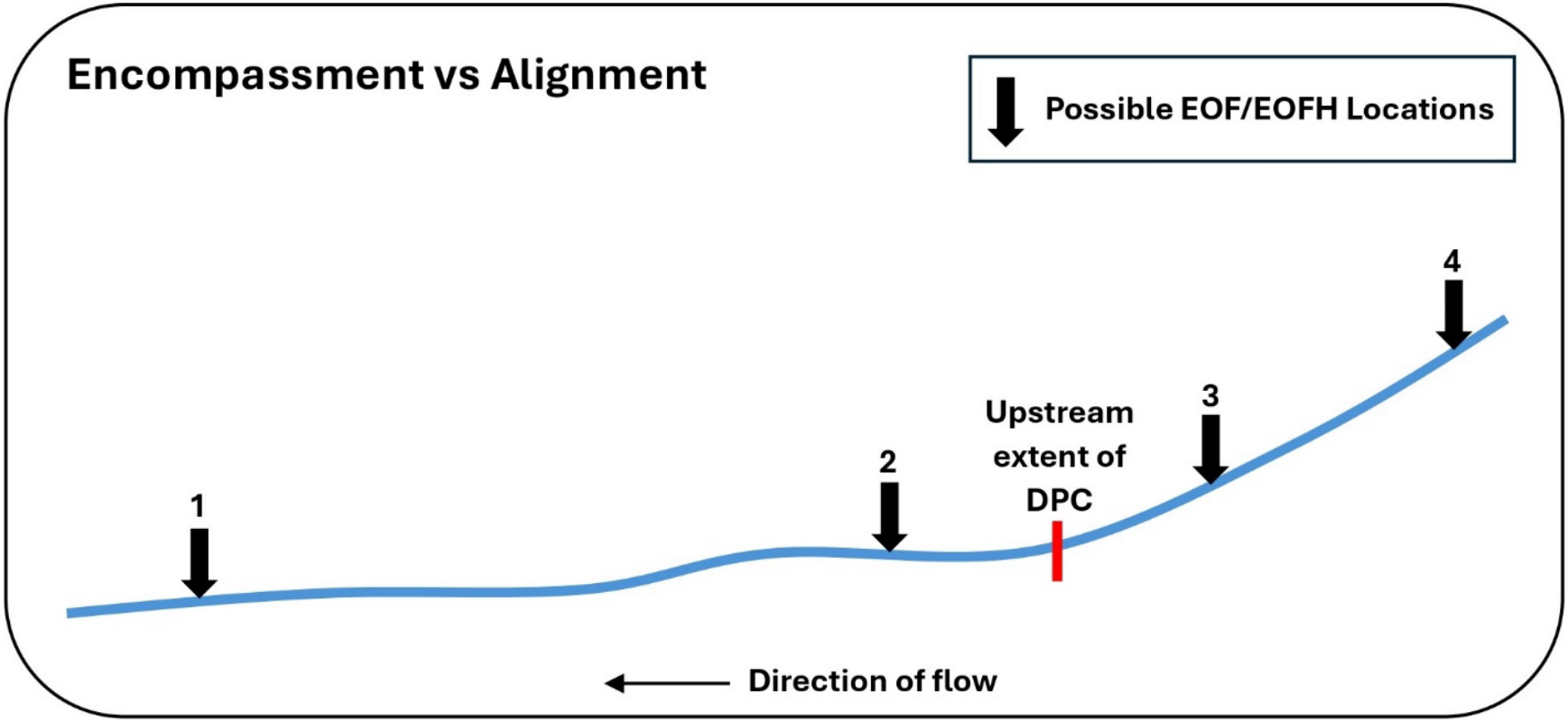
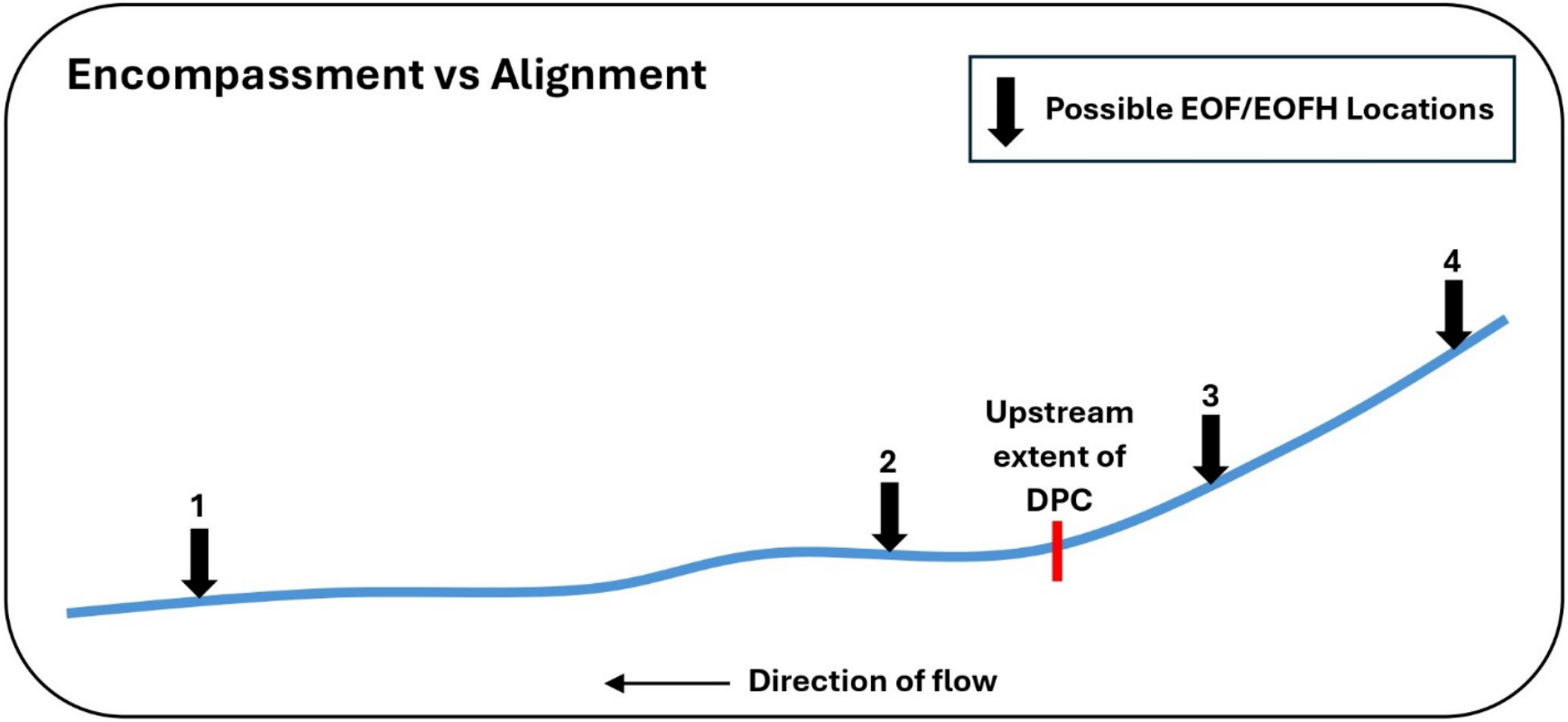


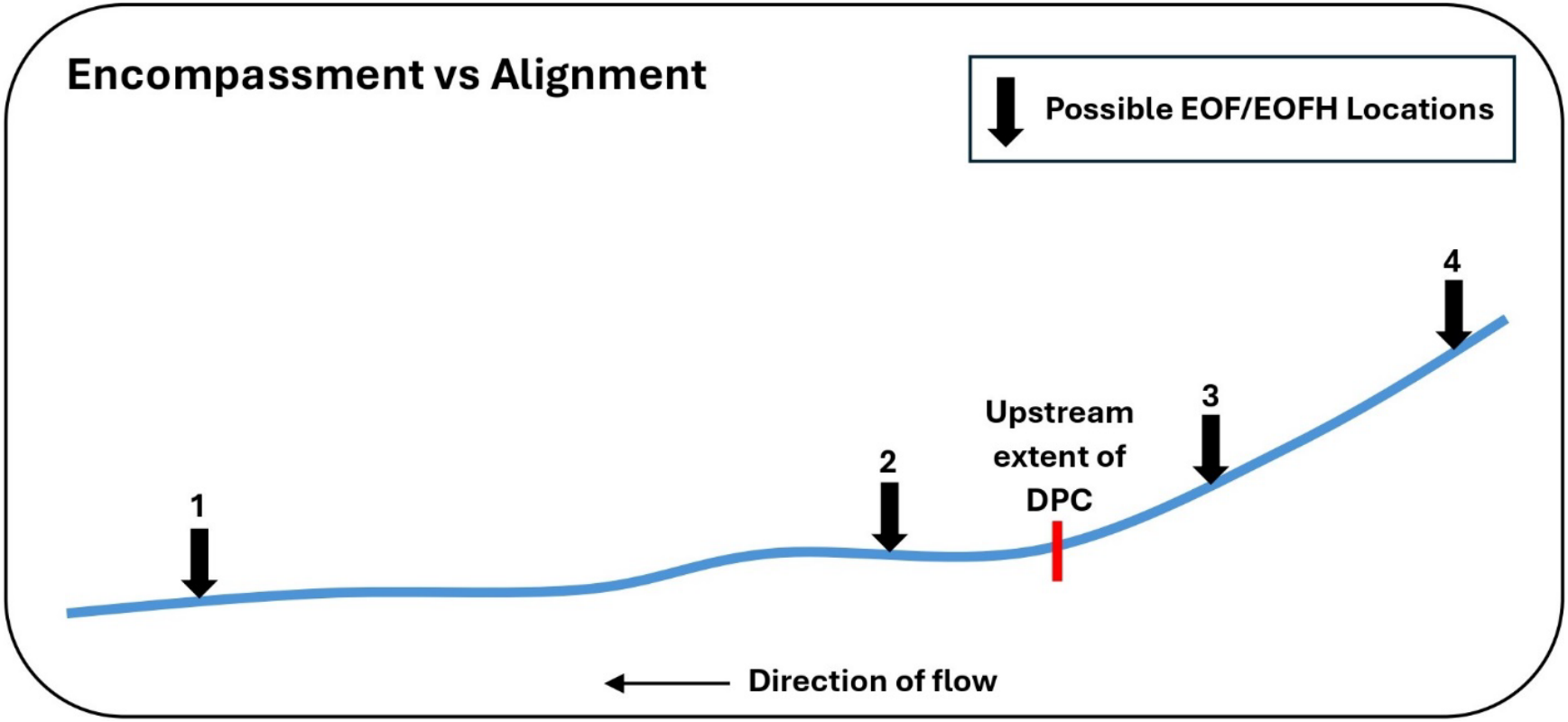
Illustration of four possible EOF/EOFH locations in relation to the upstream extent of DPC point on a hypothetical stream segment. The assessment of 'encompassment' and 'alignment' conditions vary depending on the location of the EOF/EOFH relative to the DPC point.



Encompassment is a binary response variable, where a DPC point that occurs upstream from an EOF/EOFH location is considered to 'encompass' that location (Encompassment = YES), while a DPC point that occurs downstream from an EOF/EOFH location does not (Encompassment = NO).



Alignment is a continuous quantitative response variable that represents the distance between the EOF/EOFH location and the DPC point, where a DPC point that occurs in relatively close proximity to an EOF/EOFH location is considered to be more 'aligned' with that location, while a DPC point that does not occur in relatively close proximity to an EOF/EOFH location is considered to be less 'aligned' with that location.

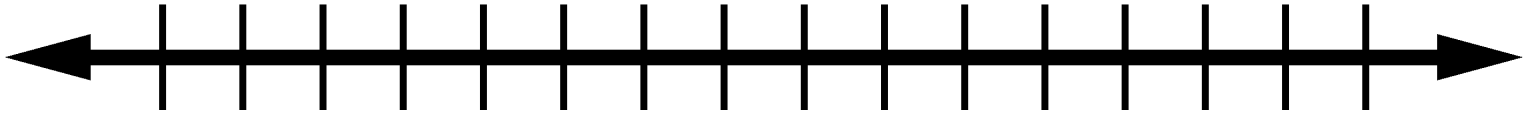


Results for the four possible (hypothetical) EOF/EOFH locations presented in this figure would be:

- **(1) Encompass = YES / less aligned**
- **(2) Encompass = YES / more aligned**
- **(3) Encompass = NO / more aligned**
- **(4) Encompass = NO / less aligned**

Status, Timeline, & Next Steps

- **ISPR/CMER review and approval of PHB Study Design completed August 2023**
- **Site selection (desktop) and access coordination ongoing**
- **ISPR/CMER review of DPC Study Design in fall/winter of 2024/5**
- **Field implementation starting March 2025 (for both PHB and DPC studies… remember, same field sites/surveys)**
- **The Board is expected to use study findings to inform which PHB criteria to use in FHAM and which DPC to use as part of a permanent water typing rule**

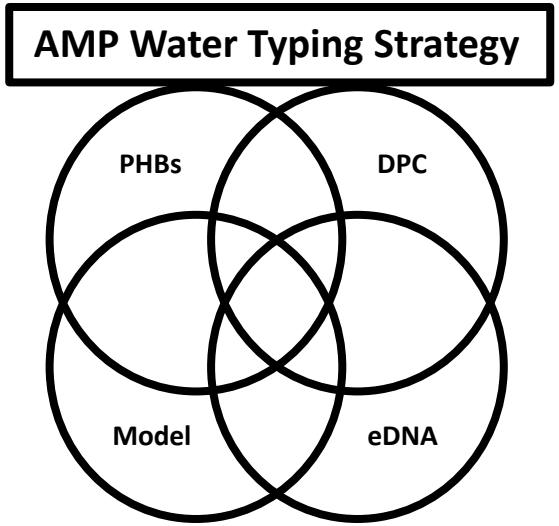


In Summary

- **The Board is currently in the process of establishing a permanent water typing rule.**
- **The rule must be implementable, repeatable, and enforceable by practitioners and regulators involved in the water typing system.**
- **The individual elements of the AMP Water Typing Strategy should inform this rule making process and help achieve these objectives.**

In Summary

- **While related… completion of individual strategy elements is not dependent on completion of the entire strategy. Individual milestones will continue to be completed and reviewed without the necessity to wait until completion of the entire strategy**



Questions???