

FLOWPER v3 – Field Application for Collection of FLOWPERmanence Field Observations

FLOWPER v3 User's Guide Supplement

<https://www.blm.gov/sites/default/files/docs/2026-06/usgs-flowper-2026.pdf>

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FLOWPER v3 User's Guide Supplement detailing the FLOWPER v3 field form
as a companion to the U.S. Geological Survey (USGS) Open File Report FLOWPER User's Guide

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All photographs were taken by the FLOWPER Field Application and are in the public domain.

What is FLOWPER

- FLOWPER is intended to facilitate the rapid collection of observations of surface water presence or absence.
- FLOWPER focuses on the rapid collection of a set of simple visual observations that can be recorded from a road over a stream or while standing on the bank of a stream.
- With crowdsourced observations collected by many users of FLOWPER, a larger number of observations can be collected from a wide geographical range from all parts of the stream network at any time of the year.
- Please refer to the FLOWPER's User's Guide (Jaeger et al., 2020) for further information.

Objective

- This presentation is intended to complement the FLOWPER User's Guide (Jaeger et al., 2020).
- This presentation details portions of the FLOWPER version3 (v3) field form that are different from the FLOWPER v2 field form.
- The FLOWPER User's Guide is the primary document for FLOWPER data collection and remains relevant for the FLOWPER v3 field form.
- The FLOWPER v3 field form is an updated version of the FLOWPER v2 field form.
- Revised and new questions in the field form will help pinpoint locations on maps and are meant to help better assign field observations to the correct feature on a map, making the data more informative and usable.
- Completion of the survey still occurs within a few minutes.

Refer to the FLOWPER User's Guide for:

- What is FLOWPER and can it be used?
- Accessing FLOWPER
- Disclaimer
- Terms of use
- Geographical Position System (GPS) Setup and Survey123® (Esri, 2026) configuration
- Data availability
- FLOWPER v3 questions that are unchanged from FLOWPER v2

Presentation Contents

- This presentation provides FLOWPER data collectors with a quick overview of what has changed in the latest version of the field form and detailed instructions for completing new questions.
- Refer to the User's Guide to access all versions of FLOWPER.
- The FLOWPER v2 field form includes 16 questions.
- The FLOWPER v3 field form includes 23 questions.
- This presentation provides a crosswalk (Table 1) between v2 and v3 question numbers and identifies revised or new questions.
- Table 1 can be used to identify where in the FLOWPER User's Guide to find detailed information of the same or questions with only minor changes.
- Subsequent slides detail all questions with status of "revised" or "new" and some questions with status of "same/minor."
- The following slides go through the new and revised questions one by one for Questions 4-14, 16, 18, 19, and 23, with examples of the user interface.

Table 1. FLOWPER v2 and v3 Crosswalk

v2 Question Number	v2 Question	v3 Question Number	v3 Question	Status
1	Observer Name	1	Observer Name	Same/minor
2	Observer Organization	2	Observer Organization	Same/minor
4	Observation Date	3	Observation Date	Same/minor
3	Sampling Scheme	4	Plot ID	Revised
—	—	5	Repeated Sampling Effort	New
—	—	6	Adjacent to Previous Plot	New
—	—	6.1	Plot Location relative to Previous Plot	New
—	—	6.2	Plot Length Measurement Method	New
5	Location of Observation	7	Location of Observation (GPS)	Same/minor
—	—	7.1	GPS Receiver Placement	New
—	—	8	Plot Azimuth	New
—	—	8.1	Azimuth Direction	New
—	—	8.2	Metal Structure Nearby	New

Table 1. FLOWPER v2 and v3 Crosswalk – continued

v2 Question Number	v2 Question	v3 Question Number	v3 Question	Status
—	—	9	Reference Hydrography	New
—	—	9.1	Stream Edge ID	New
—	—	9.2	Plot on Reference Hydrography Flowline	New
6	Stream Name	10	Stream Name	Revised
—	—	10.1	Specify Stream Name	New
—	—	10.2	Stream Name Origin	New
—	—	11	Multiple Stream Channels	New
—	—	11.1	Relative Channel Flow	New
11.1	Tributary Junction	12	Tributary Junction Within 50m	Same/minor
11.1.1	Tributary Junction Type	12.1	Plot Location relative to Tributary Junction	Revised
—	—	12.2	Tributary Junction Mapped on Reference Hydrography	New
—	—	12.3	Distance to Tributary Junction	New

Table 1. FLOWPER v2 and v3 Crosswalk – continued

v2 Question Number	v2 Question	v3 Question Number	v3 Question	Status
11.2	Diversion Junction	13	Diversion Junction Within 50m	Same/minor
11.2.1	Diversion Junction Type	13.1	Plot Location relative to Diversion Junction	Revised
—	—	13.2	Diversion Junction Mapped Reference Hydrography	New
—	—	13.3	Distance to Diversion Junction	New
7	Flow Status	14	Surface Water Presence & Distribution	Revised
—	—	14.1	Surface Water Flow	New
15	Max Water Depth	15	Maximum Water Depth	Same/minor
—	—	15.1	Water Depth Units	Same
—	—	15.2	Water Depth Accuracy	Same
8	Stream Type	16	Channel Form	Revised
13	Active Channel Width	17	Active Channel Width (Bankfull)	Same/minor
9	Dominant Substrate	18	Dominant Substrate Type	Revised

Table 1. FLOWPER v2 and v3 Crosswalk – continued

v2 Question Number	v2 Question	v3 Question Number	v3 Question	Status
10	Road Crossing	19	Road or Trail Crossing Within 50m	Revised
—	—	19.1	Crossing Type	Same/minor
—	—	19.2	Plot Location relative to Crossing	Same/minor
—	—	19.3	Plot Distance to Crossing	New
—	—	19.4	Road or Trail Name	Same/minor
12	Expected Condition	20	Flow Permanence Judgement Call	Same/minor
11.3	Upstream Limit Flow	21	Upstream Limit Continuous Flow	Same/minor
11.4	Channel Head	22	Channel Head	Same/minor
—	—	22.1	Channel Head Type	Same/minor
16	Pertinent Notes & Photographs	23	Pertinent Notes & Photographs	Revised
14	Active Valley Floor Width	—	REMOVED	Removed

Question 4 Plot ID

v2: Q3 Sampling Scheme

v3: Q4 Plot ID

Status: Revised

Plot ID field renamed from Sampling Scheme.

Options:

- Enter Plot ID if part of sampling effort
- Leave blank if unknown

Please refer to the FLOWPER's User's Guide for further information.

4 Plot ID

Enter Plot ID if location of observation is part of a sampling effort with predetermined or otherwise identified sample locations, leave blank if not.

Figure 1. Screen capture of Question 4 of Plot ID in FLOWPER v3.

Question 5 Repeated Sampling Effort

v2: No equivalent
v3: Q5 Repeated Sampling Effort
Status: New

Repeated sampling indicator for repeat locations.

Options:

- Yes
- No
- No data/Unknown (default)

5 **Marked Plot** is Part of a Repeated Sampling Effort Over Time

💡 Repeated measures at a physically marked location. Plot ID and GPS Placement must be identical across visits. *Double check Plot ID and GPS Placement.*

☐ Yes

☐ No

☐ No data/
Unknown

Figure 2. Screen capture of Question 5 of Repeated Sampling Effort in FLOWPER v3.

Question 6 Adjacent to Previous Plot

v2: No equivalent
v3: Q6 Adjacent to Previous Plot
Status: New

New spatial longitudinal tracking.

Options:

- Yes
- No
- No data/Unknown (default)

6 Plot **Immediately Adjacent** to Previous Plot
(Spatially longitudinal survey)

💡 If plot is a *continuation* of a *spatially longitudinal survey* select Yes, if not select No.

The sequence of time-stamps (question #3) must match the sequence of surveyed plots spatially and same device used. Plots must be: 1) Adjacent to one another without overlaps or gaps, 2) measured at 10m in length, and 3) have Plot Azimuth recorded. Tap figure next to Yes option to enlarge.



☒ Yes

☐ No

☐ No data/Unknown

10m plot immediately
adjacent next plot

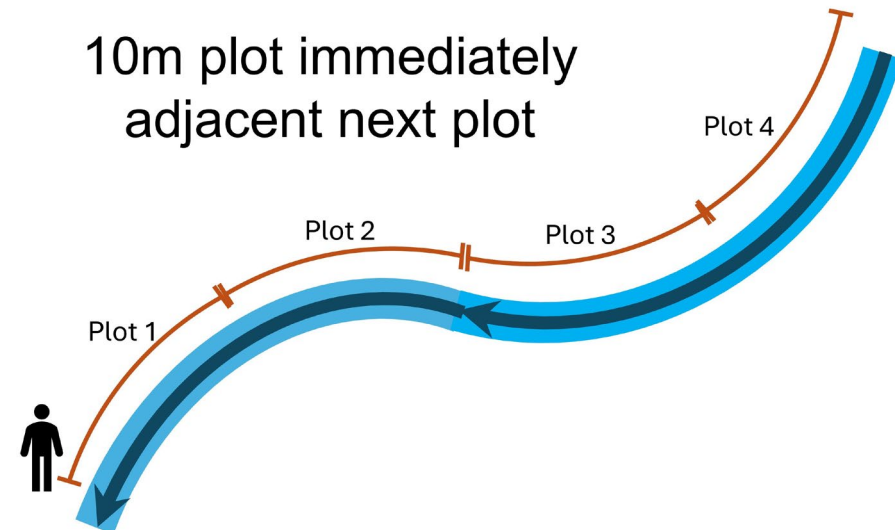


Figure 3. Screen capture of Question 6 Adjacent to Previous Plot in FLOWPER v3.

Question 6.1 Plot Location relative to Previous Plot

v2: No equivalent

v3: Q6.1 Plot Location relative to Previous Plot
Status: New

Indicates collecting data in the upstream or downstream direction.

Options:

- Upstream of previous plot
- Downstream of previous plot
- No data/Unknown

6.1 Plot Location **relative** to Previous Plot *

Is this plot collected upstream or downstream from the previous plot in this longitudinal survey effort?

- ☐ **Upstream** of previous plot
- ☐ **Downstream** of previous plot
- ☐ No data/Unknown

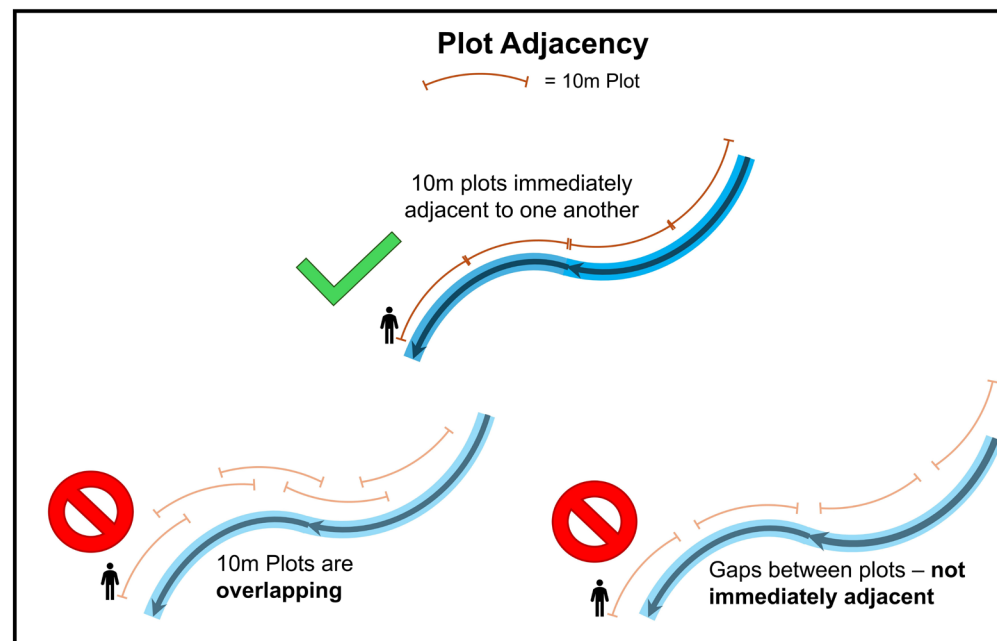


Figure 4. Screen capture of Question 6.1 Plot Location relative to Previous Plot in FLOWPER v3.

Question 6.2 Plot Length Measurement Method

v2: No equivalent

v3: Q6.2 Plot Length Measurement Method

Status: New

Method used to collect data in the upstream or downstream location.

Options:

- Measuring Tape
- Laser Rangefinder
- Pace
- No data/Unknown

6.2 Plot Length Measurement Method *

Measuring tape or laser rangefinder are preferred.

- ☐ Measuring Tape ☐ Laser Rangefinder ☐ Pace
- ☐ No data/Unknown

Figure 5. Screen capture of Question 6.2 Plot Length Measurement Method in FLOWPER v3.

Question 7.1 GPS Receiver Placement

v2: No equivalent

v3: Q7.1 GPS Receiver Placement

Status: New

Relative location of GPS receiver in the observation plot.

Options:

- Downstream edge of observation plot
- Upstream edge of observation plot
- Other

7.1 GPS Receiver Placement *

💡 If safe, place GPS on downstream or upstream edge of 10m plot when recording #7 Location of Observation.



Downstream edge of observation plot



Upstream edge of observation plot



Other

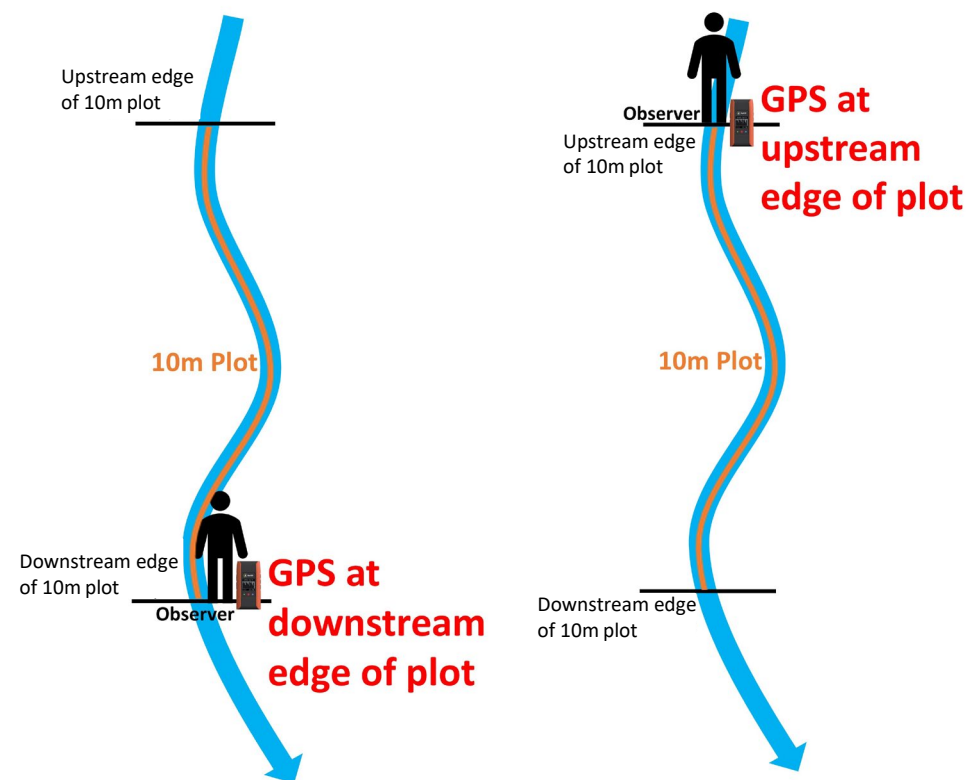


Figure 6. Screen capture of Question 7.1 GPS Receiver Placement in FLOWPER v3.

Question 8 Plot Azimuth

v2: No equivalent

v3: Q8 Plot Azimuth

Status: New

New azimuth measurement. Orient device parallel to 10m plot, tap compass to record.

Options:

- Compass azimuth value measured against magnetic north (no declination included) collected by the mobile device's internal magnetometer.

Move small electronic and metal objects away from data collection device when collecting azimuth.

8 Plot Azimuth

💡 Orient tablet/phone parallel to the 10m observation plot, then hold device flat with screen up and tilt to line up crosshairs. **Tap compass to record azimuth.**

Move small metal objects away from device and scan surroundings for large metal structures. If indicator on right points to red zone, device magnetometer may not be calibrated correctly.

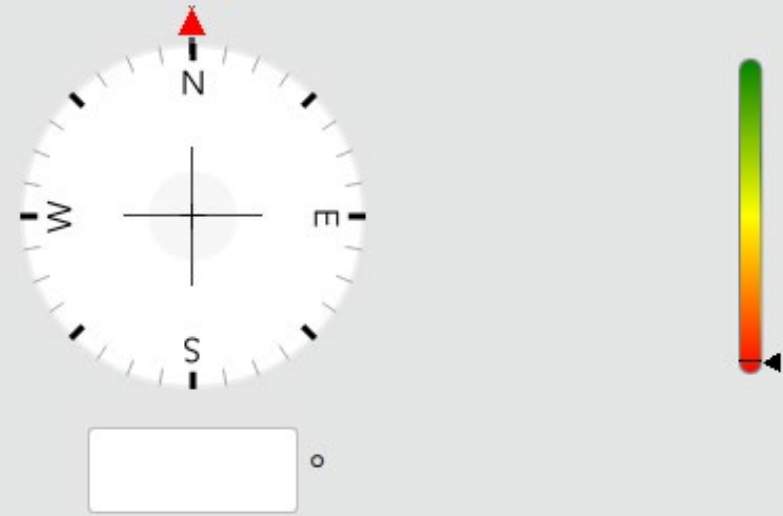


Figure 7. Screen capture of Question 8 Plot Azimuth in FLOWPER v3.

Question 8.1 Azimuth Direction

v2: No equivalent

v3: Q8.1 Azimuth Direction

Status: New

Direction observer was facing when azimuth was taken.

Options:

- Facing upstream
- Facing downstream
- No data

8.1 Azimuth Direction

Tap figure next to each option to enlarge.

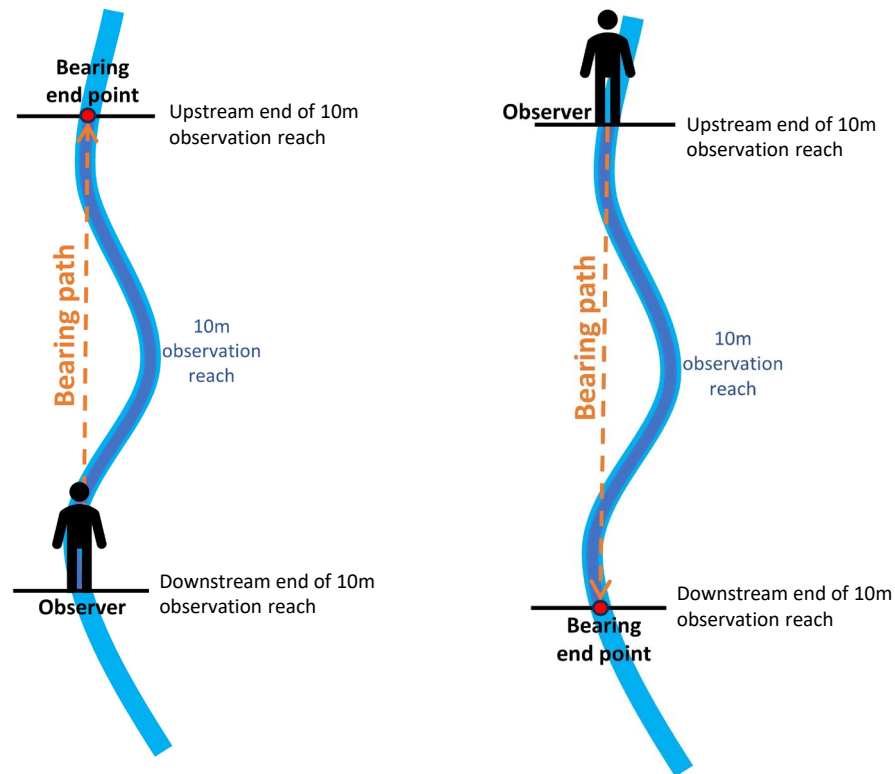


Figure 8. Screen capture of Question 8.1 Azimuth Direction in FLOWPER v3.

Question 8.2 Metal Structure Nearby Location

v2: No equivalent

v3: Q8.2 Metal Structure Nearby Location

Status: New

Presence of metal structure that could affect azimuth bearing. Approximately 1 m is considered to be “nearby”.

Options:

- Yes
- No
- No data

8.2 Metal Structure Nearby Location

Scan surroundings for metal structures like culverts, fences or bridges.



Yes



No



No data

Figure 9. Screen capture of Question 8.2 Metal Structure Nearby Location in FLOWPER v3.

Question 9 Reference Hydrography

v2: No equivalent
v3: Q9 Reference Hydrography
Status: New

New reference hydrography dataset selection.

Options:

- FLOWPER Prioritization Map
- Terrainworks® Hydrography (TerrainWorks® Inc., 2026)
- Washington (WA) State Light Detection and Ranging (LiDAR) Hydrography (Washington Department of Ecology, 2026)
- Other
- None

▼ Hydrography Data

9 Reference Hydrography

💡 Referencing a hydrography (1) reliably associates a FLOWPER Observation with the correct flowline and (2) identifies an error in the line work (e.g. when a flowline is not mapped but a stream is physically present).

- ☐ FLOWPER Prioritization Map
- ☐ Terrainworks Hydrography
- ☒ WA State LiDAR Hydrography
- ☐ Other
- ☐ None

Figure 10. Screen capture of Question 9 Reference Hydrography in FLOWPER v3.

Question 9.1 Stream Edge ID

v2: No equivalent
v3: Q9.1 Stream Edge ID
Status: New

Stream segment EdgeID associated with observation.
Leave blank if unknown.

9.1 Stream Edge ID

Stream segment EdgeID is available in maps generated from the FLOWPER Admin Team. Refer to the FLOWPER v3 User's Guide for more information. If EdgeID is unknown, leave blank.

Specify other reference hydrography

Figure 11. Screen capture of Question 9.1 Reference Hydrography in FLOWPER v3.

Question 9.2 Plot on Reference Hydrography Flowline

v2: No equivalent

v3: Q9.2 Plot on Reference Hydrography Flowline

Status: New

Proximity of observation to reference hydrography.

Options:

- Yes - Snap plot point to flowline
- Yes - Move flowline to plot location
- No - Extend flowline upslope
- No - Add new flowline
- Unclear
- Other
- No data

9.2 Plot on Reference Hydrography Flowline *

Should the observation point be snapped to the reference hydrography flowline, selected in question #9?

- ☐ Yes - Snap plot point to flowline
- ☐ Yes - Move flowline to plot location
- ☐ No - Extend flowline upslope to plot location
- ☐ No - Add new flowline at plot location
- ☐ Unclear - Flowline needs major rerouting
- ☐ Other
- ☐ No data

Figure 12. Screen capture of 9.2 Plot on Reference Hydrography Flowline in FLOWPER v3.

Question 10 Stream Name Known

v2: Q6 Stream Name

v3: Q10 Stream Name Known

Status: Revised

Response categories simplified for v3. Adds Stream Name Origin sub-question.

Options:

- Yes
- No
- No data/Unknown (default)
- If Yes: 10.1 Specify Stream Name
- If Yes: 10.2 Stream Name Origin including Geographic Names Information System (GNIS) (GNIS, 2026) from the USGS National Map and National Hydrography Dataset (NHD) (U.S. Geological Survey, 2019).

Please refer to the FLOWPER's User's Guide for further information.

10 Stream Name

Select Yes if stream name is known.

☒ Yes

☐ No

☐ No data/
Unknown

10.1 Specify stream name *

💡 Type in any stream name that identifies the stream where the observation plot is located.

10.2 Stream Name Origin *

Source for the stream name.

- ☐ Official GNIS Name (National Map/NHD)
- ☐ Map name (not USGS National Map/NHD)
- ☐ Local name (signage or local knowledge)
- ☐ User assigned or Project specific name
- ☐ No data/Unknown

Figure 13. Screen capture of Questions 10 Stream Name Known and 10.1-10.2 Stream Name sub-questions in FLOWPER v3.

Question 11 and 11.1 Multiple Stream Channels

v2: No equivalent
v3: Q11 Multiple Stream Channels
Status: New

Multiple-channel indicator new in v3. Relative channel flow if multiple channels are present.

Options:

- Yes
- No
- No data/Unknown (default)
- If Yes: 11.1 Relative Channel Flow
 - Plot on primary channel
 - Plot NOT on primary channel
 - No data/Unknown

11 Multiple Stream Channels

Multiple stream channels can be simple like oxbows or single side-channels, or they may be more complex with many intertwining channels like braided streams.

☒ Yes ☐ No ☐ No data/Unknown

11.1 Relative Channel Flow *

All information recorded in this survey form should **ONLY** describe the channel where the observer is standing and recording the GPS location data.



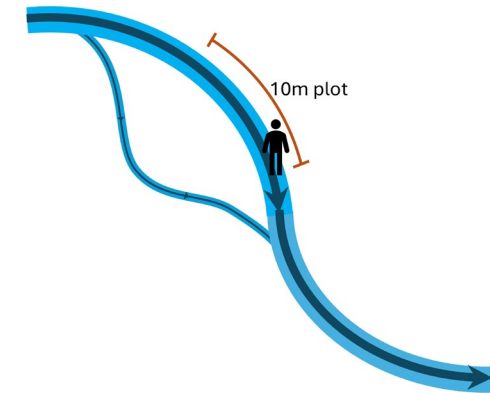
☐ Plot on primary channel (*most likely to have flow/ most flow*)



☐ Plot NOT on primary channel

☐ No data/Unknown

ON primary channel



NOT on primary channel

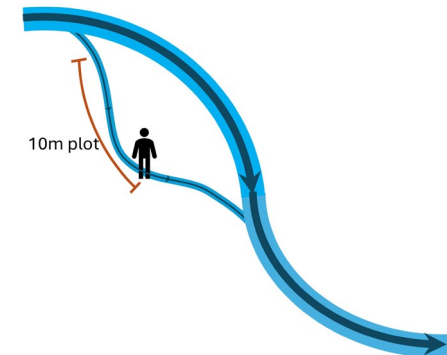


Figure 14. Screen capture of Questions 11 and 11.1 Multiple Stream Channels in FLOWPER v3.

Question 12 Tributary Junction Within 50m

v2: Q11.1 Tributary Junction
v3: Q12 Tributary Junction Within 50m
Status: Revised

Moved from special conditions; standardized distance of 50m.

Options:

- Yes
- No
- No data/Unknown (default)
- If Yes: 12.1 Plot Location
- 12.2 Mapped on Ref. Hydro
- 12.3 Distance

Please refer to the FLOWPER's User's Guide for further information.

12 Tributary Junction within 50m of Plot?

💡 A tributary junction or confluence may be mapped in the reference hydrography, or it may be unmapped if one or more of the channels or flowpaths is not represented.

☐ Yes

☐ No

☒ No data/
Unknown

Figure 15. Screen capture of Question 12 Tributary Junction Within 50 m in FLOWPER v3.

Question 12.1 Plot Location relative to Tributary Junction

v2: Q11.1.1 Tributary Junction Type
v3: Q12.1 Plot Location relative to Tributary Junction
Status: New

Proximity of 10m plot to the tributary junction.

Options:

- On mainstem, downstream of tributary
- On mainstem, upstream of tributary
- On tributary
- No data/Unknown

12.1 Plot Location **relative to** Tributary Junction *

💡 Where is the 10m plot relative to the tributary junction? The tributary is identified by a shorter TOTAL contributing stream length. Review reference hydrography to identify which channel is the tributary when it is not easily apparent from the ground.
Tap figure next to each option to enlarge.

-  ☐ On mainstem, **downstream** of tributary
-  ☐ On mainstem, **upstream** of tributary
-  ☐ On tributary
- ☐ No data/Unknown

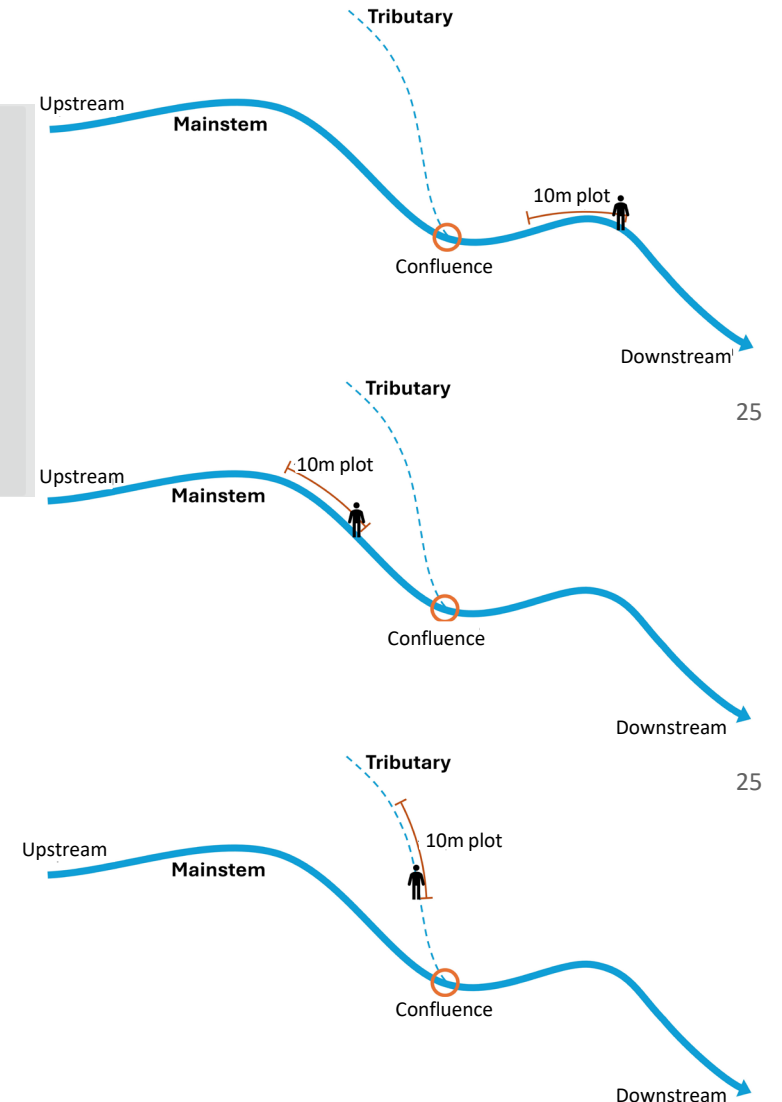
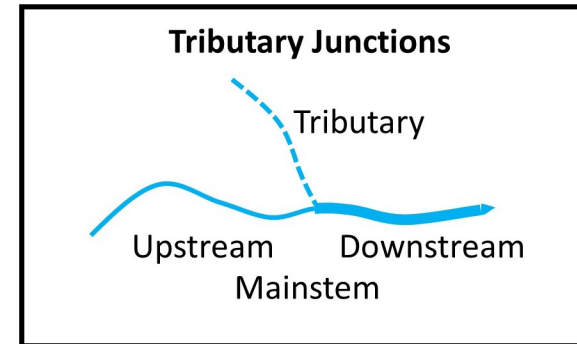


Figure 16. Screen capture of Question 12.1 Plot Location relative to Tributary Junction in FLOWPER v3.

Question 12.2 Tributary Junction Mapped on Reference Hydrography

v2: No equivalent

v3: Q12.2 Tributary Junction Mapped on Reference Hydrography

Status: New

Identify if tributary junction is visibly mapped on reference hydrography.

Options:

- Yes
- No
- No data/Unknown

12.2 Tributary Junction Mapped on Reference Hydrography *

Is the tributary junction visibly mapped on reference hydrography (flowlines for both tributary and mainstem are mapped)?

☐ Yes

☐ No

☐ No data/
Unknown

Figure 17. Screen capture of Question 12.2 Tributary Junction Mapped on Reference Hydrography in FLOWPER v3.

Question 12.3 Distance to Tributary Junction

v2: No equivalent

v3: Q12.3 Distance to Tributary Junction

Status: New

Estimate distance from tributary junction to nearest end of plot.

Options:

- 0 meters (at junction)
- >0 to 10 meters
- >10 to 30 meters
- >30 meters
- No data/Unknown

12.3 Distance to Tributary Junction *

💡 Estimate distance from tributary junction to nearest end of plot.

- ☐ 0 meters (at tributary junction)
- ☐ >0 to 10 meters
- ☐ >10 to 30 meters
- ☐ >30 meters
- ☐ No data/Unknown

Figure 18. Screen capture of Question 12.3 Distance to Tributary Junction in FLOWPER v3.

Question 13 Diversion Junction Within 50m

v2: Q11.2 Diversion Junction

v3: Q13 Diversion Junction Within 50m

Status: Revised

Promoted from special conditions; distance specified at 50m.

13 Diversion Junction within 50m of Plot?

Diversion ditches are manmade and do not follow typical flow paths. They may traverse hillslopes to transfer water for agriculture.

☐ Yes

☐ No

☒ No data/
Unknown

Figure 19. Screen capture of Question 13 Diversion Junction Within 50 m in FLOWPER v3.

Options:

- Yes
- No
- No data/Unknown (default)
- If Yes: 13.1 Plot Location
- 13.2 Mapped on Ref. Hydro
- 13.3 Distance

Please refer to the FLOWPER's User's Guide for further information.

Question 13.1-13.3 Diversion Junction Sub Questions

v2: Q11.2.1 Diversion Junction Type
v3: Q13.1-13.3 Diversion Junction Sub Questions
Status: New

Plot location, mapping status, and distance to diversion junction.

Options:

- 13.1: Location relative to Diversion Junction - On mainstem downstream/upstream/On diversion
- 13.2: Diversion Junction Mapped on Reference Hydrography - Yes/No/No data
- 13.3: Distance to Diversion Junction – 0 meters/ >0 to 10 meters/<10 to 30 meters/>30 meters/No data/Unknown

13.1 Plot Location **relative to** Diversion Junction *

Where are you standing **relative to** the diversion junction? *On mainstem is preferred*

- ☐ On mainstem, **downstream** of diversion
- ☐ On mainstem, **upstream** of diversion
- ☐ On diversion
- ☐ No data/Unknown

13.2 Diversion Junction mapped on **Reference Hydrography** *

Is the diversion junction visibly mapped on reference hydrography (flowlines for both diversion and mainstem are mapped)?

- ☐ Yes
- ☐ No
- ☐ No data/Unknown

13.3 Distance to Diversion Junction *

Estimate distance from diversion junction to nearest end of plot.

- ☐ 0 meters (at diversion junction)
- ☐ >0 to 10 meters
- ☐ >10 to 30 meters
- ☐ >30 meters
- ☐ No data/Unknown

Figure 20. Screen capture of Questions 13.1-13.3 Diversion Junction Sub Questions in FLOWPER v3.

Question 14 Surface Water Presence & Distribution

v2: Q7 Flow Status

v3: Q14 Surface Water Presence & Distribution
Status: Revised

Terminology revised to emphasize spatial distribution. Includes photographs.

Options:

- Spatially Continuous
- Spatially Discontinuous
- Dry
- No data/Unknown

Please refer to the FLOWPER's User's Guide for further information.

Please answer questions while conducting a visual observation of a 10m plot.

14 Surface Water Presence & Distribution - *this is what FLOWPER is all about!* *

Select the option that best describes **current** presence and spatial distribution of surface water **along 10m plot** even if plot is not part of the drainage network or there is no scoured stream channel.

Tap image next to each option to enlarge.



☐ Spatially **Continuous**



☐ Spatially **Discontinuous**



☐ Dry



☐ No data/Unknown



Figure 21. Screen capture of Question 14 Surface Water Presence & Distribution in FLOWPER v3.

Question 14.1 Surface Water Flow

v2: No equivalent

v3: Q14.1 Surface Water Flow

Status: New

Further information if surface water is present.

14.1 Surface Water Flow *

💡 Select the best option describing surface water flow status

- ☐ Flowing surface water (any flow in 10m plot)
- ☐ Still surface water (*not flowing/moving*)
- ☐ No data/Unknown

Figure 22. Screen capture of Question 14.1 Surface Water Flow in FLOWPER v3.

Options:

- Flowing surface water (any flow in 10m plot)
- Still surface water (not flowing/moving)
- No data/Unknown

Question 16 Channel Form

v2: Q8 Stream Type

v3: Q16 Channel Form

Status: Revised

Expanded categories with additional detail and illustrative photographs in v3.

Options:

- Natural stream - active scour present
 - Modified natural stream or drainage - leveed/channelized
 - Artificial stream or drainage - canal/ditch, NOT parallel to road
 - Artificial drainage - roadside ditch, parallel to road
 - Lentic water - wetland, marsh, pond, or lake
 - Natural drainage - linear depression, NO active scour
 - Not a flow path
 - Other
 - No data
- Please refer to the FLOWPER's User's Guide for further information.

Channel Geomorphology Data

16 Channel Form *

💡 Flowing waters can remove organic matter and sediment, exposing underlying substrate. These waters have **scoured** the stream bed. Scour can be assumed active if substrate is visible and relatively free of other debris along a flow path.

Tap image next to each option to enlarge.



☐ Natural stream - **active scour present**



☐ Modified natural stream or drainage - *leveed or channelized*



☐ Artificial stream or drainage - *canal or ditch, NOT parallel to a road*



☐ Artificial drainage - *roadside ditch, parallel to a road*



☐ Lentic water - *wetland, marsh, pond, or lake*



☐ Natural drainage - *linear depression, NO active scour, maybe evidence ephemeral flow, i.e. a part of a Drainage Network*



☐ Not a flow path - *NO linear depression, NO active scour, NO evidence ephemeral flow, i.e. NOT a part of a Drainage Network*



☐ Other



☐ No data

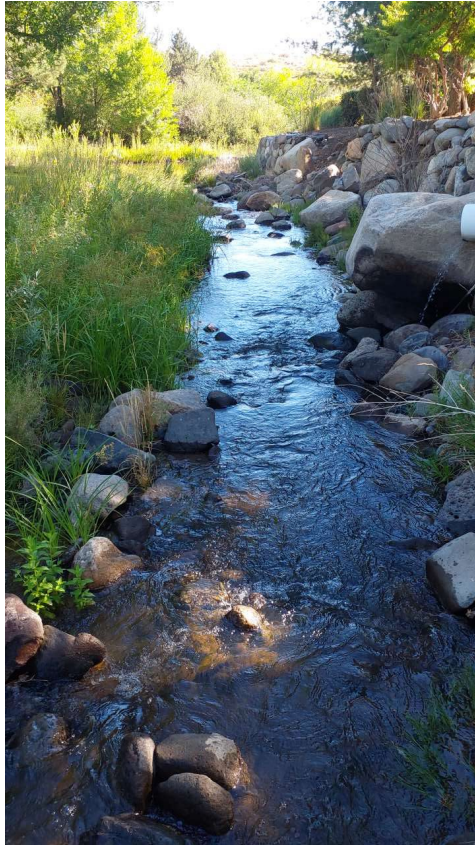
Figure 23. Screen capture of Question 16 Channel Form in FLOWPER v3.

Question 16 Channel Form

A



B



C

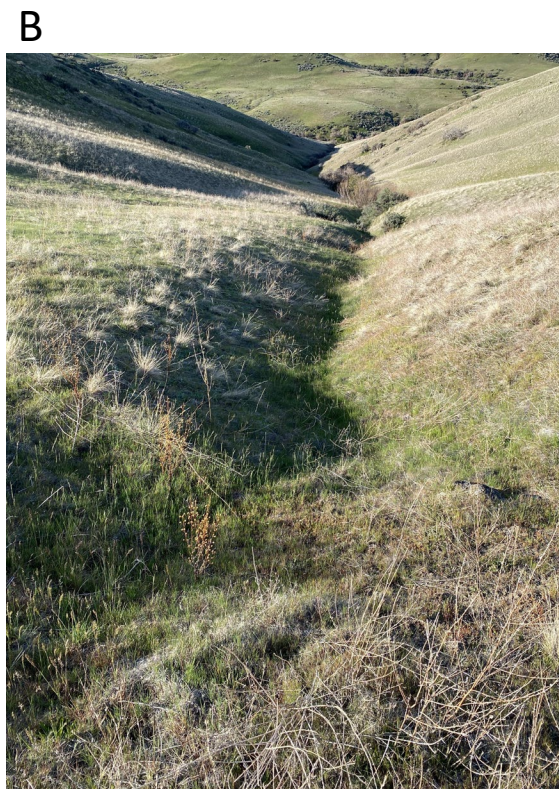


D



Figure 24. Screen capture of Question 16 Channel Form illustrative photographs in FLOWPER v3: Natural stream (A), Modified natural stream or drainage (B), Artificial stream or drainage (C), Artificial drainage (D).

Question 16 Channel Form



D

*Specify other channel form **

Question 18 Dominant Substrate Type

v2: Q9 Channel Bed Substrate

v3: Q18 Dominant Substrate Type

Status: Revised

Clarified substrate examples in v3. Options dependent on Channel Form answer.

Options:

- Coarse sediment
- Fine sediment
- Bedrock
- Artificial
- No data

Please refer to the FLOWPER's User's Guide for further information.

18 Dominant Substrate Type *

Survey within 10m plot.

Sand, gravel, cobble and boulder are **coarse sediments**. Clay, silt, and detritus are **fine sediments**.

Options available for Dominant Substrate are dependent on answer provided to Channel Form.

- ☐ Coarse sediment
- ☐ Fine sediment
- ☐ Bedrock
- ☐ Artificial
- ☐ No data

18 Dominant Substrate Type *

Survey within 10m plot.

Sand, gravel, cobble and boulder are **coarse sediments**. Clay, silt, and detritus are **fine sediments**.

Options available for Dominant Substrate are dependent on answer provided to Channel Form.

- ☒ No discernable active scour/channel (e.g. grass/terrestrial veg)

Figure 26. Screen capture of Question 18 Dominant Substrate Type in FLOWPER v3.

Question 19 and 19.1-19.2 Road or Trail Crossing Sub Questions

v2: Q10 Road Crossing
v3: Q19 Road or Trail Crossing Within 50m
Status: Revised

v3 includes trail and adds distance criterion of 50m.
Additional information about crossing.

Options:

- 19.1 Crossing Type – Culvert/Bridge/Ford/Other/No data
- 19.2 Plot Location relative to crossing – Upstream/Downstream/No data

Please refer to the FLOWPER's User's Guide for further information.

19 Road or Trail Crossing Present within 50m of Plot *

Roads are intended for passenger vehicle travel. Trails are NOT intended for passenger vehicle travel.

☒ Road crossing ☐ Trail crossing ☐ No crossing ☐ No data

19.1 Crossing Type *

Select the crossing type that best describes the road-stream crossing structure.

☐ Culvert ☐ Bridge ☐ Ford ☐ Other ☐ No data

19.2 Plot Location **relative to** Crossing *

Where is the 10m plot (Location of Observation) **relative to** the road-stream crossing?

Tap figures next to each option to enlarge.

 ☐ Upstream of crossing  ☐ Downstream of crossing
☐ No data

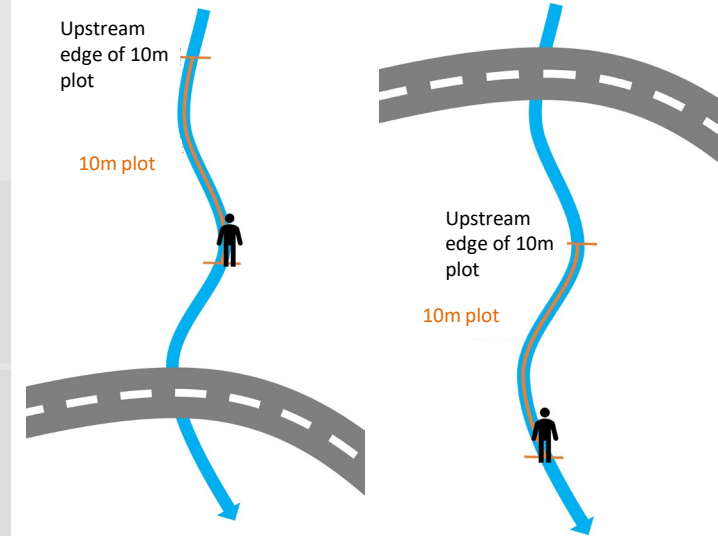


Figure 27. Screen capture of Question 19 and 19.1-19.2 Sub Questions Road or Trail Crossing Within 50 m in FLOWPER v3.

Question 19.3 Plot Distance to Crossing

v2: No equivalent
v3: Q19.3 Plot Distance to Crossing
Status: New

Estimated distance from crossing structure to nearest end of 10m plot.

Options:

- 0 meters
- >0-10 meters
- >10-30 meters
- >30 meters
- No data

19.3 Plot Distance to Crossing *

Estimated distance from crossing structure to the nearest end of the 10m plot.

- ☐ 0 meters ☐ >0-10 meters ☐ >10-30 meters ☐ >30 meters
☐ No data

Figure 28. Screen capture of Questions 19.3 Road or Trail Crossing sub questions in FLOWPER v3.

Question 23 Pertinent Notes & Photographs

v2: Q16 Pertinent Notes & Photographs
v3: Q23 Pertinent Notes & Photographs
Status: Same/minor

Different question number. Adds specific Photograph of Channel Form and Road-Stream Crossing.

Options:

- Notes (2000 char)
- Photo of Observation Location
- Photo of Channel Form (NEW)
- Additional Photo 1 (optional)
- Additional Photo 2 (optional)

Please refer to the FLOWPER's User's Guide for further information.

▼ 23 Pertinent Notes & Photos

Notes

Record comments about observation location, data collection, or any other details that were not captured in the survey questions.

Photo of Observation Location

💡 Capture general location and 10m plot including flow path, or lack there of, and overhanging vegetation.



Photo of Channel Form

Up close photo of benthos capturing (1) scour, if present, the (2) presence or absence of water, and (3) substrate.



Photo of Road-Stream Crossing

Capture road-stream crossing. If possible focus on the stream channel and crossing structure.



Figure 29. Screen capture of Question 23 Pertinent Notes and Photographs in FLOWPER v3.

FLOWPER User's Guide

- Jaeger, K.L., Burnett, J., Heaston, E.D., Wondzell, S.M., Chelgren, N., Dunham, J.B., Johnson, S., and Brown, M., 2020, FLOWPER User's Guide—For collection of FLOWPERmanence field observations: U.S. Geological Survey Open-File Report 2020–1075, 40 p., <https://doi.org/10.3133/ofr20201075>.
- The FLOWPER v3 User's Guide Supplement is available as a companion document (<https://www.blm.gov/sites/default/files/docs/2026-06/usgs-flowper-2026.pdf>).

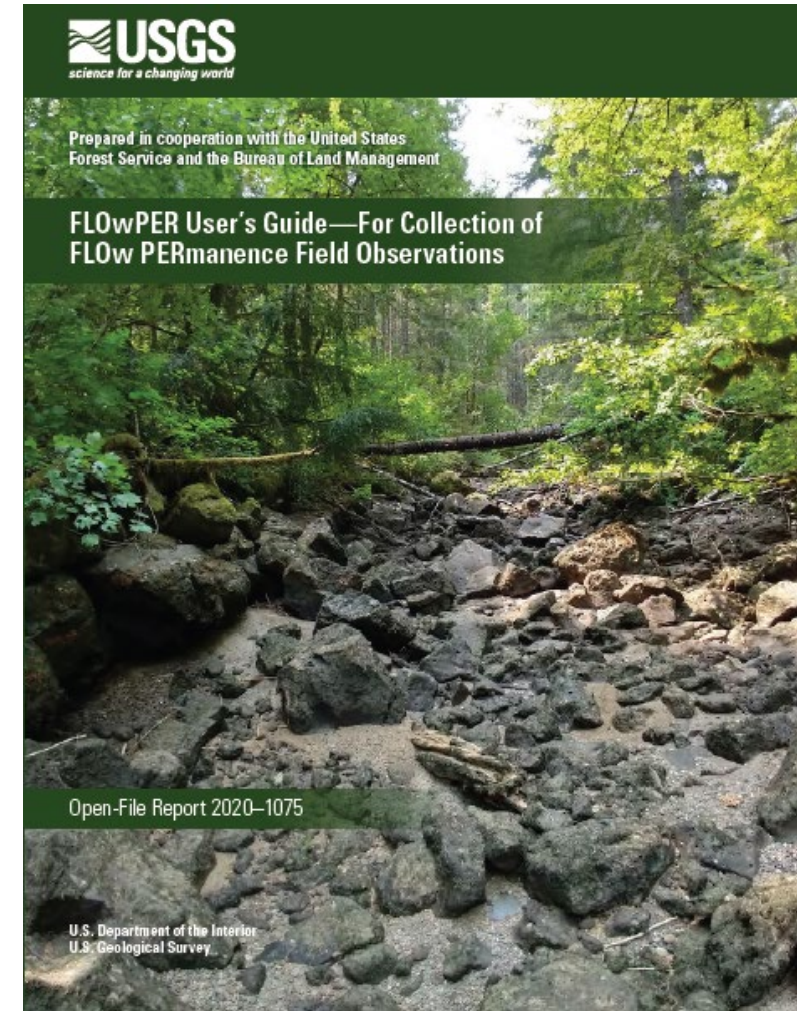


Figure 30. Screen capture of cover page of FLOWPER User's Guide.

Data Availability

- As a contributor to the FLOWPER database, the database is available in ArcGIS Online (AGOL) to view and download the data.
- These data have not been reviewed for accuracy. Please see the section “DISCLAIMER” for more information in the FLOWPER User’s Guide (<https://doi.org/10.3133/ofr20201075>).
- Please contact your in-house GIS support for help in accessing the FLOWPER database in the FLOWPER group.
- Periodically, FLOWPER observations will be archived in a publicly available FLOWPER database accessed at <https://www.sciencebase.gov/catalog/item/5edea67582ce7e579c6e5845>.

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