Package: fwatlasbc (via r-universe)

October 29, 2024

Title Freshwater Atlas British Columbia

Version 0.0.1.9018

Description What the package does (one paragraph).

License MIT + file LICENSE

URL https://poissonconsulting.github.io/fwatlasbc/

Depends R (>= 4.1)

Imports chk (>= 0.8.1.9001), digest, dplyr, fwapgr (>= 0.1.0.9013), glue, lifecycle, lwgeom, purrr, sf, stats, stringr, tibble, tidyplus, tidyselect

Suggests covr, googleway, hms, mapview, readr, rlang, testthat (>= 3.0.0)

Remotes poissonconsulting/chk, poissonconsulting/fwapgr

Config/testthat/edition 3

Encoding UTF-8

Language en-US

LazyData true

Roxygen list(markdown = TRUE)

RoxygenNote 7.3.2

Repository https://poissonconsulting.r-universe.dev

RemoteUrl https://github.com/poissonconsulting/fwatlasbc

RemoteRef HEAD

RemoteSha 14beb33f839737efd00ee478c3a6d37ff147d7c4

Contents

`fwa_add_blks_to_stream_name`

Add Blue Line Key(s) to Stream Name

Description

Adds blue line keys (blk) to stream names. There may be more than one stream with the same name.

Usage

```
fwa_add_blks_to_stream_name(x, stream_name = fwatlasbc::fwa_stream_name)
```

Arguments

x	A data frame with character column stream_name.
stream_name	A data frame with whole numeric column blk and character column stream_name.

Value

A tibble with the columns of x plus an integer column blk.

Examples

```
fwa_add_blks_to_stream_name(data.frame(stream_name = "Sangan River"))
```

`fwa_add_blk_to_lon_lat`

Add Blue Line Key to Longitude and Latitude

Description

Adds integer blue line key (blk) and numeric river meter (rm) column and sfc point (geometry) column of the closest point on the stream network (by default within 5 km) to the point specified by the lon and lat (WGS84).

Usage

```
fwa_add_blk_to_lon_lat(
  x,
  tolerance = 5000,
  limit = 1,
  epsg = getOption("fwa.epsg", 3005),
  nocache = getOption("fwa.nocache", FALSE)
)
```

Arguments

x	A data frame with numeric longitude (long) and latitude (lat) columns.
tolerance	A number of the tolerance in m.
limit	A positive whole number indicating the maximum number of features to return.
epsg	A positive whole number of the EPSG projection for the geometry.
nocache	A flag specifying whether or not to cache results.

Details

If a match isn't found the row is dropped.

Value

An sf tibble with the columns of x plus integer column blk, real columns rm and distance_to_lon_lat and sfc point column geometry

Examples

```
## Not run:
fwa_add_blk_to_lon_lat(data.frame(lon = -132.26, lat = 53.36))

## End(Not run)
```

---

fwa_add_collection_to_polygon

Add Collection to Polygon

Description

Adds collection to a polygon such as a watershed. If the active sfc polygon column is called geometry it is replaced by the geometry column of the collection. If the collection includes a blue_line_key column the values are copied to column blk replacing any existing values.

Usage

```
fwa_add_collection_to_polygon(
  x,
  collection = "stream_network",
  intersect = FALSE,
  filter = NULL,
  limit = 10000,
  offset = 0,
  properties = NULL,
  transform = NULL,
  epsg = getOption("fwa.epsg", 3005),
  nocache = getOption("fwa.nocache", FALSE)
)

fwa_add_collection_to_watershed(
  x,
  collection = "stream_network",
  intersect = FALSE,
  filter = NULL,
  limit = 10000,
  offset = 0,
  properties = NULL,
  transform = NULL,
  epsg = getOption("fwa.epsg", 3005),
  nocache = getOption("fwa.nocache", FALSE)
)
```

Arguments

`x` A sf object with an active sfc polygon column.

`collection` A character string of the collection.

`intersect` A logical vector specifying whether to intersect the individual features with the polygon as opposed to just including the features that intersect it.

`filter` A named vector or list of the filter(s) to apply, where the list names correspond to column names and the list values correspond to the desired value, e.g. `list(gnis_name = "Sangan River")`.

`limit` A positive whole number indicating the maximum number of features to return.

`offset` A positive whole number indicating the offset of start of returned results.

`properties` A vector of strings of the column names to include. If NULL (default), all columns are retained.

`transform` A character vector with the name of the *valid transform* function followed by the parameter values (e.g. c("ST_Simplify", 100))

`epsg` A positive whole number of the epsg to transform features to.

`nocache` A flag specifying whether or not to cache results.

Value

An sf object

Functions

- `fwa_add_collection_to_watershed()`: **[Superseded]**

  Deprecated for `fwa_add_collection_to_polygon()`.

See Also

`fwapgr::fwa_collection()`.

Examples

```
## Not run:
watershed <- fwa_add_watershed_to_blk(data.frame(blk = 356308001))
fwa_add_collection_to_polygon(watershed)

## End(Not run)
```

fwa_add_cut_to_rms *Add Cut to River Meter*

Description

Adds value(s) in cut column in y to to column of same name in x based on blk and rm_start and rm_end in y.

Usage

```
fwa_add_cut_to_rms(x, y, cut = "cut")
```

Arguments

x	A data frame with integer columns blk and rm.
y	A data frame with integer columns blk, rm_start, rm_end and column specified in cut.
cut	A string of the name of the column in y with the values.

Value

A tibble of x with cut column from y.

fwa_add_downstream_split_to_rms *Add Split to River Meter*

Description

Splits river meters with parent_blk and parent_rm columns into upstream (TRUE) versus not (FALSE).

Usage

```
fwa_add_downstream_split_to_rms(x, y)
```

Arguments

x	A data frame with integer columns blk, rm, parent_blk and parent_rm.
y	A data frame with integer columns blk and rm and character column name.

Value

A tibble of x with a logical column for each name in name.

fwa_add_gm_elevation_to_point

Add Google Maps Elevation to Point

Description

Add Google Maps Elevation to Point

Usage

```
fwa_add_gm_elevation_to_point(
  x,
  chunk_size = 300L,
  digits = 7,
  key = Sys.getenv("GOOGLE_MAPS_ELEVATION_API_KEY")
)
```

Arguments

x	An sf object of spatial points.
chunk_size	The number of rows to include in each API query.
digits	The number of digits to round the latitude and longitude by before querying the elevation from the API
key	A string of the Google Maps Elevation API key.

Value

An updated version of x with numeric column elevation.

See Also

googleway::google_elevation()

Examples

```
## Not run:
rm <- fwa_add_rms_to_blk(data.frame(blk = 356308001))
fwa_add_gm_elevation_to_point(rm)

## End(Not run)
```

fwa_add_intersection_to_geometry

Add Intersection to Geometry

Description

Adds a logical column for each name in name in y indicating whether each element of x intersects with the element of y.

Usage

```
fwa_add_intersection_to_geometry(x, y)
```

Arguments

x	An sf data frame.
y	An sf data frame with character column name.

Value

A copy of x with a logical column for each name in name indicating whether each element of x intersects with the element of y.

fwa_add_new_blk_rm_to_blk_rm

Add New Blue Line Key and River Meter to Blue Line Key and River Meter

Description

Adds new blk and rm values to existing blk and rm values based on look up in second data frame.

Usage

```
fwa_add_new_blk_rm_to_blk_rm(
  x,
  y,
  blk = "blk",
  rm = "rm",
  blk2 = "blk",
  rm2 = "rm",
  new_blk = "new_blk",
  new_rm = "new_rm",
  new_blk_to = new_blk,
  new_rm_to = new_rm
)
```

Arguments

`x` A tibble (or sf object) with blk and rm columns.

`y` A tibble (or sf object) with unique blk and rm columns and new blk (optional) and rm columns.

`blk` A string of the name of the blk column in x.

`rm` A string of the name of the rm column in x.

`blk2` A string of the name of the blk column in y.

`rm2` A string of the name of the rm column in y.

`new_blk` An optional string of the name of the new blk column in y. If NULL it is not used in the join.

`new_rm` A string of the name of the new rm column in y.

`new_blk_to` A string specifying the name to rename the new blk column with.

`new_rm_to` A string specifying the name to rename the new blk column with.

Value

An updated version of x with additional columns for the new blk and rm columns.

See Also

`[fwa_add_new_rm_to_blk_rm()]`

`fwa_add_rms_to_blk` *Add River Meters to Blue Line Key*

Description

Adds distances (rm) and spatial coordinates (geometry) of regularly spaced points along blue line key (blk). All distances which are in meters are from the river mouth.

Usage

```
fwa_add_rms_to_blk(
  x,
  interval = 1000,
  start = 0,
  end = Inf,
  epsg = getOption("fwa.epsg", 3005),
  nocache = getOption("fwa.nocache", FALSE)
)
```

Arguments

`x` A data frame with integer column blk.

`interval` A whole numeric of the distance between points.

`start` A whole numeric of the start distance.

`end` An integer of the end distance.

`epsg` A positive whole number of EPSG projection for the coordinates.

`nocache` A flag specifying whether or not to cache results.

Value

An sf tibble with the columns of x plus integer column rm and sf column geometry.

Examples

```
## Not run:
fwa_add_rms_to_blk(data.frame(blk = 356308001))

## End(Not run)
```

`fwa_add_section_to_rms` *Add Section to River Meter*

Description

Adds section column in y to x based on blk and end rm in y. All rms in x up to and including the end rm but before the previous end rm are assigned the section column value (which can be missing).

Usage

```
fwa_add_section_to_rms(x, y, section = "section")
```

Arguments

`x` A data frame with integer columns blk and rm.

`y` A data frame with integer columns blk and rm and column specified in section.

`section` A string of the name of the column in y (can include missing values).

Value

A tibble of x with section column from y.

fwa_add_stream_names_to_blk

Add Blue Line Key(s) to Stream Name

Description

Adds blue line keys (blk) to stream names. There may be more than one stream with the same name.

Usage

```
fwa_add_stream_names_to_blk(x, stream_name = fwatlasbc::fwa_stream_name)
```

Arguments

`x`	A data frame with whole numeric column blk.
`stream_name`	A data frame with whole numeric column blk and character column stream_name.

Value

A tibble with the columns of x plus an integer column blk.

Examples

```
fwa_add_stream_names_to_blk(data.frame(blk = 360886335L))
```

fwa_add_upstream_split_to_rms

Add Split to River Meter

Description

Splits river meters with parent_blk and parent_rm columns into upstream (TRUE) versus not (FALSE).

Usage

```
fwa_add_upstream_split_to_rms(x, y)

fwa_add_split_to_rms(x, y)
```

Arguments

`x`	A data frame with integer columns blk, rm, parent_blk and parent_rm.
`y`	A data frame with integer columns blk and rm and character column name.

Value

A tibble of x with a logical column for each name in name.

Functions

- `fwa_add_split_to_rms()`: Soft-deprecated **[Deprecated]**

`fwa_add_watershed_to_blk` *Add Watershed to Blue Line Key*

Description

Adds polygon (geometry) of aggregated fundamental watersheds to blue line key (blk). The rm distances which is in meters is from the river mouth.

Usage

```
fwa_add_watershed_to_blk(
  x,
  exclude = FALSE,
  epsg = getOption("fwa.epsg", 3005),
  nocache = getOption("fwa.nocache", FALSE)
)
```

Arguments

`x`	An sf object with a polygon sfc column specifying watersheds and an optional rm column specfying the river meter. The rm is set to be 0 if missing.
`exclude`	A logical vector specifying whether to exclude the fundamental watershed in which the start falls.
`epsg`	A positive whole number of the epsg to transform features to.
`nocache`	A flag specifying whether or not to cache results.

Value

An sf tibble with the columns of x plus sf column geometry.

A sf object

See Also

`fwapgr::fwa_watershed_at_measure()`.

Examples

```
## Not run:
fwa_add_watershed_to_blk(data.frame(blk = 356308001))

## End(Not run)
```

`fwa_collection_name` *Collection Name*

Description

A tibble of collection names.

Usage

```
fwa_collection_name
```

Format

An object of class `spec_tbl_df` (inherits from `tbl_df`, `tbl`, `data.frame`) with 12 rows and 2 columns.

Examples

```
fwa_collection_name
```

`fwa_convert_rms_to_streams` *Convert River Metres to Streams*

Description

Casts river metre points to linestrings by blk.

Usage

```
fwa_convert_rms_to_streams(x)
```

Arguments

`x`	An point sf object with whole numeric columns blk and rm.

Value

A linestring sf object with whole numeric columns blk and rm.

fwa_convert_streams_to_rms

Convert Streams to River Meters

Description

Converts a tibble of streams to river meters. Unlike `fwa_convert_stream_network_to_rms()` it only requires the linestrings and the unique integer identifier for each stream.

Usage

```
fwa_convert_streams_to_rms(
  x,
  interval = 5,
  gap = 1,
  end = NULL,
  elevation = FALSE,
  reverse = integer()
)
```

Arguments

`x`	An sf tibble with a column blk and linestrings of streams.
`interval`	A positive whole number of the distance (m) between points.
`gap`	A positive real number specifying the maximum gap (m) between the mouth of stream and its parent stream to be considered connected.
`end`	A positive whole number indicating how far (m) the end of the stream linestring has to be from the last interval to be included. To default `end = NULL` (equivalent to `end = interval + 1`) excludes ends.
`elevation`	A flag specifying whether to use the elevation from Google Maps to determine stream direction (or use the direction of the provided linestrings)
`reverse`	A whole numeric vector of streams to reverse direction ignoring elevation.

Value

An sf tibble with the columns blk, integer column rm and sf column point geometry.

See Also

`fwa_convert_stream_network_to_rms()`

Examples

```
## Not run:
watershed <- fwa_add_watershed_to_blk(data.frame(blk = 356308001, rm = 1000))
network <- fwa_add_collection_to_polygon(watershed)
network <- select(network, blk = blue_line_key)
fwa_convert_streams_to_rms(network, interval = 100)

## End(Not run)
```

`fwa_convert_stream_names_to_blks` *Converts Stream Names to Blue Line Keys*

Description

Each stream name is converted to a blue line key by calculating it's integer hash.

Usage

```
fwa_convert_stream_names_to_blks(names)
```

Arguments

`names`	A character vector of stream names.

Details

This function is only expected to be used when a blue line key does not already exist.

Value

An positive integer vector of blue line keys.

Examples

```
fwa_convert_stream_names_to_blks(c("a stream name", "a stream name2"))
```

fwa_convert_stream_network_to_rms *Convert Stream Network to River Meters*

Description

Converts a tibble of a BC stream network to river meters.

Usage

```
fwa_convert_stream_network_to_rms(x, interval = 5, tolerance = 0.1)
```

Arguments

x	An sf tibble of a stream network.
interval	A whole number of the distance between points.
tolerance	A number of the acceptable discrepancy in meters in the network lengths.

Value

An sf tibble with the columns of x plus integer column rm and sf column geometry.

See Also

fwa_convert_streams_to_rms()

Examples

```
## Not run:
watershed <- fwa_add_watershed_to_blk(data.frame(blk = 356308001, rm = 1000))
network <- fwa_add_collection_to_polygon(watershed)
fwa_convert_stream_network_to_rms(network, interval = 100)

## End(Not run)
```

fwa_find_stream_names *Find Stream Names*

Description

Finds gnis stream names that match regular expression.

Usage

```
fwa_find_stream_names(pattern = ".*", ignore_case = TRUE)
```

Arguments

`pattern`	A string of a regular expression.
`ignore_case`	A flag specifying whether to ignore case when matching the regular expression to gnis stream names.

Value

A tibble with character column stream_name of the names of all the streams that match the regular expression.

Examples

```
fwa_find_stream_names("sangan")
```

`fwa_get_section_from_rms` *Get Section from River Meter*

Description

Gets sf tibble of section blk, rm, length and geometry where sections are defined by the their most upstream point.

Usage

```
fwa_get_section_from_rms(x, section = "section")
```

Arguments

`x`	A data frame with integer columns blk and rm.
`section`	A string of the name of the column in x that specifies the sections.

Value

A sf tibble with integer columns blk, rm, length and a geometry where rm and geometry are the upstream end of the section.

fwa_get_segment_from_rms

Get Segment from River Meter

Description

Gets sf tibble of section blk, rm_start, rm_end, segment and line geometry.

Usage

```
fwa_get_segment_from_rms(x, segment = "segment")
```

Arguments

`x`	A data frame with integer columns blk and rm.
`segment`	A string of the name of the column in x, which must be a character or factor vector, that specifies which segment each rms belongs to.

Value

A sf tibble with integer columns blk, rm_start, rm_end, character/factor segment and a line geometry.

fwa_join_stream_segments

Join Stream Segments

Description

Converts a tibble of stream segment linestrings to stream linestrings.

Usage

```
fwa_join_stream_segments(x, elevation = FALSE, reverse = integer())
```

Arguments

`x`	An sf tibble with a column blk and linestrings of stream segments.
`elevation`	A flag specifying whether to use the elevation from Google Maps to determine stream direction (or use the direction of the provided linestrings)
`reverse`	A whole numeric vector of streams to reverse direction ignoring elevation.

Value

An sf tibble with the columns blk and sfc column point geometry.

See Also

fwa_convert_streams_to_rms()

Examples

```
## Not run:
watershed <- fwa_add_watershed_to_blk(data.frame(blk = 356308001, rm = 1000))
network <- fwa_add_collection_to_polygon(watershed)
network <- select(network, blk = blue_line_key)
fwa_join_stream_segments(network)

## End(Not run)
```

fwa_mapview *Map View*

Description

A wrapper on `mapview::mapview.sf()` that allows the user to layer by a column and coerces hms columns to character (to avoid being dropped).

Usage

```
fwa_mapview(x, layer = NULL, zcol = NULL, legend = FALSE, ...)
```

Arguments

x	An sf data frame.
layer	A string of the column to layer the points by.
zcol	A string of the column to color points by.
legend	A flag specifying whether to plot a legend.
...	Additional arguments passed to `mapview::mapview()`.

fwa_mapview_rms *Map View River Meters*

Description

Map View River Meters

Usage

```
fwa_mapview_rms(
  x,
  layer = NULL,
  zcol = "rm",
  legend = FALSE,
  npoint = 250,
  ...
)
```

Arguments

`x`	An sf data frame with unique integer columns blk and rm.
`layer`	A string of the column to layer the points by.
`zcol`	A string of the column to color points by.
`legend`	A flag specifying whether to plot a legend.
`npoint`	An indication of the total number of points to plot.
`...`	Additional arguments passed to `mapview::mapview()`.

fwa_mapview_rms_to_rms

Map View River Meters

Description

Maps two alternative stream networks by adding links from each point in x to matching point in y.

Usage

```
fwa_mapview_rms_to_rms(x, y, zcol = "rm", npoint = 250)
```

Arguments

`x`	An sf data frame with unique integer columns blk and rm and integer column new_rm.
`y`	An sf data frame with unique integer columns blk and rm.
`zcol`	A string of the column to color points by.
`npoint`	An indication of the total number of points to plot.

`fwa_parent_blk_rms` *Parent Blue Line Key*

Description

Gets parent blue line key.

Usage

```
fwa_parent_blk_rms(x, rms)
```

Arguments

`x`	A whole numeric vector of one or more blue line keys.
`rms`	A data frame with integer columns blk and parent_blk. There must be only one parent_blk for each blk.

Value

A whole numeric vector of the parent blue line keys.

`fwa_parent_stream_name_rms` *Parent Stream Name*

Description

Gets parent stream name.

Usage

```
fwa_parent_stream_name_rms(x, rms, stream_name = fwatlasbc::fwa_stream_name)
```

Arguments

`x`	A character vector of one or more stream names.
`rms`	A data frame with integer columns blk and parent_blk. There must be only one parent_blk for each blk.
`stream_name`	A data frame with character column stream_name and integer column blk. There must be no more than one blk for the stream names specified.

Value

A character vector of the parent blue line keys.

`fwa_prune_rms` *Prune River Meter*

Description

Removes river meters above rm values in y.

Usage

```
fwa_prune_rms(x, y)
```

Arguments

`x`	A data frame with integer columns blk, rm, parent_blk and parent_rm.
`y`	A data frame with integer columns blk and rm.

Value

A tibble of x with rows above the rms in y removed.

`fwa_snap_rms_to_rms` *Snap River Meters to River Meters*

Description

Assigns closest river meters to river meters by blue line keys using `fwa_snap_rm_to_rms()` rm must not have an existing new_rm column.

Usage

```
fwa_snap_rms_to_rms(x, rm, snap_mouths = FALSE)
```

Arguments

`x`	An sf object of spatial points with blk and rm columns and optional new_blk and new_rm integer column.
`rm`	An sf object of spatial point with blk and rm columns.
`snap_mouths`	A flag specifying whether to snap pairs of streams at their mouths (rm = 0) where new_rm is not already set.

Details

x is first snapped to rm then rm is snapped to x while ensuring that the links between x and rm are bidirectional as much as possible.

Value

A named list with an updated versions of x and rm with integer columns blk, new_blk, rm and new_rm and numeric column distance_to_new_rm.

See Also

`fwa_snap_rm_to_rms()`

Examples

```
rm <- fwa_add_rms_to_blk(data.frame(blk = 356308001))
x <- rm[rm$rm %in% c(0, 2000, 5000, 6000, 7000), ]
rm <- rm[rm$rm %in% c(1000, 3000, 4000, 8000, 9000, 10000), ]
fwa_snap_rms_to_rms(x, rm)
```

`fwa_snap_rm_to_point` *Snap River Meter to Point*

Description

Assigns closest river meter to each spatial point. If the blue line key (blk) is missing then it is also assigned together with the distance to the river meter (distance_to_rm) in m.

Usage

```
fwa_snap_rm_to_point(x, rm, ...)
```

Arguments

`x`	An sf object of spatial points with optional integer column blk.
`rm`	An sf object of spatial point with blk and rm columns.
`...`	Additional columns to group by when assigning. Elements with missing values in rm are assigned to any value in x.

Value

An updated version of x with integer columns blk and rm and numeric column distance_to_rm.

Examples

```
rm <- fwa_add_rms_to_blk(data.frame(blk = 356308001))
x <- rm[rm$rm %in% c(0, 2000, 5000, 6000, 7000), ]
rm <- rm[rm$rm %in% c(1000, 3000, 4000, 8000, 9000, 10000), ]
fwa_snap_rm_to_point(x, rm)
```

fwa_snap_rm_to_rms *Snap River Meter to River Meters*

Description

Assigns closest river meter to river meters based on blue line keys. If x already includes new_rm column then non-missing values are preserved. The non-missing new_rm values must be ordered (with respect to x$rm) and must be present in rm$rm. If x already includes new_blk then river meters can be assigned to a creek with a different blue line key and/or river meters from multiple creeks can be assigned to the same creek (for example in the case of a previously unmapped side channel and the mainstem).

Usage

```
fwa_snap_rm_to_rms(x, rm, snap_mouths = FALSE)
```

Arguments

`x`	An sf object of spatial points with blk and rm columns and optional new_rm integer and new_blk columns.
`rm`	An sf object of spatial point with blk and rm columns.
`snap_mouths`	A flag specifying whether to snap pairs of streams at their mouths (rm = 0) where new_rm is not already set.

Details

The closest river meter is snapped to each rm (by blk = new_blk) and missing new_rm values are replaced with the corresponding rm value. The new_rm values are then ordered by adjusting the values so that firstly all previous values are not greater than each provided new_rm value and then all subsequent values are not less than the maximum previous value. Next all runs of two or more identical new_rm values that do not include a provided new_rm are interpolated between the previous and subsequent new_rm values based on the original rm spacing and then snapped to the closest rm value in rm.

To ensure that pairs of streams snap at their mouths set the new_rm to be 0 where the rm is 0 or set `snap_mouths = TRUE`

Value

An updated version of x with integer columns blk, rm, new_blk, new_rm and numeric column distance_to_new_rm.

Examples

```
rm <- fwa_add_rms_to_blk(data.frame(blk = 356308001))
x <- rm[rm$rm %in% c(0, 2000, 5000, 6000, 7000), ]
rm <- rm[rm$rm %in% c(1000, 3000, 4000, 8000, 9000, 10000), ]
fwa_snap_rm_to_rms(x, rm)
```

fwa_snap_stream_measure_to_point

Snap Stream Measure to Point

Description

Assigns closest stream measure in m to each spatial point. If the blue line key (blk) is missing then it is also assigned together with the distance to the stream (distance_to_stream) in m.

Usage

```
fwa_snap_stream_measure_to_point(x, streams, ...)
```

Arguments

x	An sf object of spatial points with optional integer column blk.
streams	An sf object of spatial linestrings with blk column.
...	Additional columns to group by when assigning.

Value

An updated version of x with integer columns blk and stream_measure and numeric column distance_to_stream.

See Also

fwa_snap_rm_to_point()

Examples

```
## Not run:
watershed <- fwa_add_watershed_to_blk(data.frame(blk = 356308001, rm = 1000))
network <- fwa_add_collection_to_polygon(watershed)
network$blk <- network$blue_line_key
streams <- fwa_join_stream_segments(network)
points <- fwa_add_rms_to_blk(data.frame(blk = 356308001))
fwa_snap_stream_measure_to_point(points, streams)

## End(Not run)
```

`fwa_stream_name` *Stream Name*

Description

A tibble of stream names with blue line keys.

Usage

```
fwa_stream_name
```

Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 11606 rows and 2 columns.

Examples

```
fwa_stream_name
```

`fwa_swap_branches_rms` *Swap Branches of River Meters*

Description

Swaps two branches of river meters.

Usage

```
fwa_swap_branches_rms(x, y, adjust_points = TRUE)
```

Arguments

`x`	A data frame with integer columns blk, rm, parent_blk and parent_rm.
`y`	A data frame with integer column blk specifying the blue line key that currently begins at the confluence of the two branches.
`adjust_points`	A flag specifying whether to adjust the coordinates of points which move.

Value

A copy of x with the branches swapped.

Index