

## Attributed Flowlines

### Data Dictionary

These layers were developed by NOAA Fisheries for input into the Habitat Assessment and Restoration Planning (HARP) Model. The layers are modified versions of the NHD streamline network. NOAA modified the network in consultation with basin partners, segmented the stream network into 200m reaches, and calculated metrics for each reach.

Field Name	Description	Units
noaaid	Unique reach identifier	-
Habitat	Description of reach habitat type. Large and small non-tidal streams are reclassified by width within the HARP model	-
Area_km2	Area of catchment draining to reach (National Elevation Dataset, NED)	km <sup>2</sup>
slope	Stream gradient (National Elevation Dataset, NED)	m/m
BF_width	Bankfull width, modeled by NOAA	m
wet_width	Summer wetted width, modeled by NOAA	m
length	Reach length	m
lc	Landcover classification (C-CAP)	-
fpw	Width of floodplain at reach (WDNR LiDAR and National Elevation Dataset, NED)	m
temp_7DADM	7-day average daily maximum temperature, modeled by NOAA using NorWeST data (Isaak et al. 2017) and other local data	°C
temp_Jn121	Maximum temperature between June 1 and June 21, modeled by NOAA using NorWeST data (Isaak et al. 2017) and other local data	°C
pass_tot	Cumulative passage through downstream barriers (WDFW barrier database)	-
finesed_c	Current fine sediment percentage in stream bed, modeled by NOAA	%
wint_width	Winter wetted width, modeled by NOAA	m
can_ang	Current canopy opening angle, modeled by NOAA, NOAA riparian condition dataset	°
hist_ang	Historical canopy opening angle, modeled by NOAA, NOAA riparian condition dataset	°
left_ht	Height of trees on left bank, modeled by NOAA, NOAA riparian condition dataset	m
right_ht	Height of trees on right bank, modeled by NOAA, NOAA riparian condition dataset	m
psm_c	Coho prespawn mortality multiplier (Feist et al. 2017)	-
finesed_hc	Historical fine sediment percentage in stream bed, modeled by NOAA	%

pond_overl	Code indicating whether or not model reach passes through a lake or pond (NHD, GLO survey data)	-
noaa_subba	Subbasin name	-
subbasin_num	Subbasin number	-
lg_slough	(Stillaguamish only) Flag for reaches within Cook Slough	°
angle_chg	Difference between current and historic canopy opening angle	°
Coho	Code indicating whether coho salmon can both spawn and rear in a reach, only rear in a reach, or neither (developed in collaboration with watershed partners)	-
Chinook	Code indicating whether Chinook salmon can both spawn and rear in a reach, only rear in a reach, or neither (developed in collaboration with watershed partners)	-
WSteelhead	Code indicating whether winter-run steelhead can both spawn and rear in a reach, only rear in a reach, or neither (developed in collaboration with watershed partners)	-
SSteelhead	Code indicating whether summer-run steelhead can both spawn and rear in a reach, only rear in a reach, or neither (developed in collaboration with watershed partners)	-
spawn_surv	(Snohomish only) Flag indicating whether or not reach has corresponding redd survey data	-

## References

- Feist, B. E., E. R. Buhle, D. H. Baldwin, J. A. Spromberg, S. E. Damm, J. W. Davis, and N. L. Scholz. 2017. Roads to ruin: conservation threats to a sentinel species across an urban gradient. *Ecological Applications* 27:2382–2396.
- Isaak, D. J., S. J. Wenger, E. E. Peterson, J. M. V. Hoef, D. E. Nagel, C. H. Luce, S. W. Hostetler, J. B. Dunham, B. B. Roper, S. P. Wollrab, G. L. Chandler, D. L. Horan, and S. Parkes-Payne. 2017. The NorWeST summer stream temperature model and scenarios for the Western U.S.: a crowd-sourced database and new geospatial tools foster a user community and predict broad climate warming of rivers and streams. *Water Resources Research* 53:9181–9205.