METRIC LABEL

AMFCALL fractional cover of all macrophytes using am_totalcover (mean(wtA, wtB, ... wtJ))

AMFCEMERGENT fractional cover of emergent macrophytes using am_emergent (mean(wtA, wtB, ... wtJ))

AMFCFLOATING fractional cover of floating macrophytes using am_floating (mean(wtA, wtB, ... wtJ))

AMFCSUBMERGENT fractional cover of submergent macrophytes using am_submergent (mean(wtA, wtB, ... wtJ))

AMFPALL fractional presence of all macrophytes using am_totalcover (mean(atA, atB, ... atJ))

AMFPEMERGENT fractional presence of emergent macrophytes using am_emergent (mean(atA, atB, ... atJ))

AMFPFLOATING fractional presence of floating macrophytes using am_floating (mean(atA, atB, ... atJ))

AMFPSUBMERGENT fractional presence of submergent macrophytes using am_submergent (mean(atA, atB, ... atJ))

interdecimile cover of all macrophytes using am_totalcover (percentile(90, wtA, wtB, ... wtJ) -

AMIDALL percentile(10, wtA, wtB, ... wtJ))

interquartile cover of all macrophytes using am_totalcover (percentile(75 wtA, wtB, ... wtJ) -

AMIQALL percentile(25, wtA, wtB, ... wtJ))

index of total cover of aquatic macrophytes using am emergent, am floating, am submergent

(mean(Aemergent+Afloating+Asubmergent, Bemergent+Bfloating+Bsubmergent,

AMITOTAL ...Jemergent+Jfloating+Jsubmergent))

AMNALL number of stations with Total cover data using am_totalcover (count(atA, atB... atJ))

AMNEMERGENT number of stations with Emergent data using am_emergent (count(atA, atB... atJ))

AMNFLOATING number of stations with Floating data using am_floating (count(atA, atB... atJ))

AMNSUBMERGENT number of stations with Submergent data using am_submergent (count(atA, atB... atJ))

AMVALL std dev. Cover of all macrophytes using am_totalcover (stdev(wtA, wtB, wtC... wtJ))

AMVEMERGENT std dev. Cover of Emergent macrophytes using am_emergent (stdev(wtA, wtB, wtC... wtJ))

AMVFLOATING std dev. Cover of Floating macrophytes using am_floating (stdev(wtA, wtB, wtC... wtJ))

AMVSUBMERGENT std dev. Cover of Submergent macrophytes using am_submergent (stdev(wtA, wtB, wtC... wtJ))

BFFFLAT fraction with flat banks using angle (mean(flatA, flatB... flatJ))

BFFGRADUAL fraction with gradual banks using angle (mean(gradualA, gradualB... graduaU))
BFFSTEEP fraction with steep banks using angle (mean(steepA, steepB... steepJ))
BFFVERTICAL fraction with vertical banks using angle (mean(verticalA, verticalB...verticaU))
BFNANGLE number of stations with bank angle data using angle (count(atA, atB... atJ))
BFNHORIZDIST count of horizontal distance to highwater mark using horiz_dist (count(horiz_dist))

BFNHORIZDIST_DD count of horizontal distance to drawdown zone using horiz_dist_dd (count(horiz_dist_dd))

BFNHORIZDIST_DD_CHANGES Count of HORIZ_DIST_DD changes that were made at this site (ranges 0-12)

BFNHORIZDIST_DD_NOMOD Count of HORIZ_DIST_DD values prior to modification

BFNVERTHEIGHT count of vertical height to highwater mark using vert_height (count(vert_height))

BFNVERTHEIGHT_DD count of vertical height to drawdown zone using vert_height_dd (count(vert_height_dd))

BFOANGLE bank angle mode using angle (mode(classA, classB... classJ))

BFXHORIZDIST horizontal distance to highwater mark using horiz_dist (mean(horiz_dist))

BFXHORIZDIST_DD horizontal distance to drawdown zone using horiz_dist_dd (mean(horiz_dist_dd))

BFXVERTHEIGHT vertical height to highwater mark using vert_height (mean(vert_height))

BFXVERTHEIGHT_DD vertical height to drawdown zone using vert_height_dd (mean(vert_height_dd))

16th percentile of bottom substrate diameter using bs_bedrock, bs_boulders, bs_cobble, bs_gravel,

BS16LDIA bs_sand, bs_silt (percentile(16, wtA, wtB, ... wtJ))

25th percentile of bottom substrate diameter using bs_bedrock, bs_boulders, bs_cobble, bs_gravel,

BS25LDIA bs_sand, bs_silt (percentile(25, wtA, wtB, ... wtJ))

BS75LDIA

BS84I DIA

50th percentile of bottom substrate diameter using bs_bedrock, bs_boulders, bs_cobble, bs_gravel,

BS50LDIA bs_sand, bs_silt (percentile(50, wtA, wtB, ... wtJ))

75th percentile of bottom substrate diameter using bs_bedrock, bs_boulders, bs_cobble, bs_gravel,

bs_sand, bs_silt (percentile(75, wtA, wtB, ... wtJ))

84th percentile of bottom substrate diameter using bs_bedrock, bs_boulders, bs_cobble, bs_gravel,

bs_sand, bs_silt (percentile(84 wtA, wtB, ... wtJ))

BSFANOXIC fraction with anoxic odor using odor (mean(A=odor, B=odor, ... J=odor)) **BSFBLACK** fraction of Black substrate using color (count(atA, atB... atJ) / bsnColor) **BSFBROWN** fraction of Brown substrate using color (count(atA, atB... atJ) / bsnColor) **BSFCBEDROCK** fractional cover of bedrock using bs_bedrock (mean(wtA, wtB, ... wtJ)) **BSFCBOULDERS** fractional cover of Boulder using bs boulders (mean(wtA, wtB, ... wtJ)) **BSFCCOBBLE** fractional cover of Cobble using bs_cobble (mean(wtA, wtB, ... wtJ)) **BSFCGRAVEL** fractional cover of gravel using bs_gravel (mean(wtA, wtB, ... wtJ)) **BSFCHEMICAL** fraction with chemical odor using odor (mean(A=odor, B=odor, ... J=odor)) **BSFCORGANIC** fractional cover of organic using bs_organic (mean(wtA, wtB, ... wtJ))

BSFCSAND fractional cover of sand using bs_sand (mean(wtA, wtB, ... wtJ))
BSFCSILT fractional cover of silt using bs_silt (mean(wtA, wtB, ... wtJ))
BSFCWOOD fractional cover of wood using bs_wood (mean(wtA, wtB, ... wtJ))
BSFGRAY fraction of Gray substrate using color (count(atA, atB... atJ) / bsnColor)

BSFH2S fraction with H2S odor using odor (mean(A=odor, B=odor, ... J=odor))

BSFNONEODOR fraction with no odor using odor (mean(A=odor, B=odor, ... J=odor))

BSFOIL fraction with oil odor using odor (mean(A=odor, B=odor, ... J=odor))

BSFOTHERCOLOR fraction of other color substrate using color (count(atA, atB... atJ) / bsnColor)

BSFOTHERODOR fraction with other odor using odor (mean(A=odor, B=odor, ... J=odor))
BSFPBEDROCK fractional presence of bedrock using bs_bedrock (mean(atA, atB, ... atJ))
BSFPBOULDERS fractional presence of Boulder using bs_boulders (mean(atA, atB, ... atJ))
BSFPCOBBLE fractional presence of Cobble using bs_cobble (mean(atA, atB, ... atJ))
BSFPGRAVEL fractional presence of gravel using bs_gravel (mean(atA, atB, ... atJ))
BSFPORGANIC fractional presence of organic using bs_organic (mean(atA, atB, ... atJ))
BSFPSANID fractional presence of sand using bs_sand (mean(atA, atB, ... atJ))

BSFPSAND fractional presence of sand using bs_sand (mean(atA, atB, ... atJ))

BSFPSILT fractional presence of silt using bs_silt (mean(atA, atB, ... atJ))

BSFPWOOD fractional presence of wood using bs_wood (mean(atA, atB, ... atJ))

BSFRED fraction of Red substrate using color (count(atA, atB... atJ) / bsnColor)

Number of substrate classes present at a site using bs_bedrock, bs_boulders, bs_cobble, bs_gravel,

BSISITEVARIETY bs_sand, bs_silt, bs_organic, bs_wood ()

Mean number of substrate classes present in each station using bs_bedrock, bs_boulders,

BSISTAVARIETY bs_cobble, bs_gravel, bs_sand, bs_silt, bs_organic, bs_wood ()

BSNBEDROCK

number of stations with bedrock data using bs_bedrock (count(atA, atB... atJ))

BSNBOULDERS

number of stations with boulder data using bs_boulders (count(atA, atB... atJ))

BSNCOBBLE

number of stations with cobble data using bs_cobble (count(atA, atB... atJ))

BSNCOLOR

number of bottom substrate color data using color (count(atA, atB... atJ))

BSNGRAVEL

number of stations with gravel data using bs_gravel (count(atA, atB... atJ))

number of stations with odor data using odor (count(atA, atB... atJ))

BSNORGANIC number of stations with organic data using bs_organic (count(atA, atB... atJ))
BSNSAND number of stations with sand data using bs_sand (count(atA, atB... atJ))
BSNSILT number of stations with silt data using bs_silt (count(atA, atB... atJ))
BSNWOOD number of stations with wood data using bs_wood (count(atA, atB... atJ))

BSOCOLOR mode of color using color (mode(colorA, colorB... colorJ))

 $Mode\ of\ bottom\ substrate\ by\ cover\ using\ bs_bedrock,\ bs_boulders,\ bs_cobble,\ bs_gravel,\ bs_sand,$

bs_silt, bs_organic, bs_wood (space-delimited list of 1+ classes with sum(bsfcClass) =

BSOFCLASS max(sum(bsfcClass)))

BSOODOR Mode of bottom substrate odor class using odor (mode(ODOR))

 ${\tt Mode\ of\ bottom\ substrate\ by\ presence\ using\ bs_bedrock,\ bs_boulders,\ bs_cobble,\ bs_gravel,}$

bs_sand, bs_silt, bs_organic, bs_wood (space-delimited list of 1+ classes with presence =

BSOPCLASS max(bsfp*))

BSVBEDROCKstd dev. Cover of bedrock using bs_bedrock (stdev(wtA, wtB, wtC... wtJ))BSVBOULDERSstd dev. Cover of boulder using bs_boulders (stdev(wtA, wtB, wtC... wtJ))BSVCOBBLEstd dev. Cover of cobble using bs_cobble (stdev(wtA, wtB, wtC... wtJ))BSVGRAVELstd dev. Cover of gravel using bs_gravel (stdev(wtA, wtB, wtC... wtJ))

std dev. logged bottom substrate diameter (mineral) using bs_bedrock, bs_boulders, bs_cobble, bs_gravel, bs_sand, bs_silt (stdev(Dm*Csm), where Dm=log10(characteristic diam), Csm=fractional

BSVLDIA cover of class at a station)

BSVORGANIC std dev. Cover of organic using bs_organic (stdev(wtA, wtB, wtC... wtJ))

BSVSAND std dev. Cover of sand using bs_sand (stdev(wtA, wtB, wtC... wtJ))

BSVSILT std dev. Cover of silt using bs_silt (stdev(wtA, wtB, wtC... wtJ))

BSVWOOD std dev. Cover of wood using bs_wood (stdev(wtA, wtB, wtC... wtJ))

mean logged bottom substrate diameter (mineral) using bs_bedrock, bs_boulders, bs_cobble,

bs gravel, bs sand, bs silt (mean(Dm*Csm), where Dm=log10(characteristic diam), Csm=fractional

BSXLDIA cover of class at a station)

FCFCAQUATIC fractional cover of aquatic vegetation using FC_AQUATIC (mean(wtA, wtB... wtJ))

fractional cover of aquatic vegetation in the drawdown zone using FC_AQUATIC_DD (mean(wtA_dd,

FCFCAQUATIC_DD wtB_dd... wtJ_dd))

fractional cover of aquatic vegetation in the littoral zone using FC_AQUATIC (mean(wtA_lit, wtB_lit, ...

FCFCAQUATIC_LIT wtJ_lit))

fractional cover of aquatic vegetation simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC AQUATIC, HORIZ DIST DD (mean(wtA sim, wtB sim,

FCFCAQUATIC_SIM ... wtJ_sim)

FCFCBOULDERS fractional cover of boulders using FC_BOULDERS (mean(wtA, wtB... wtJ))

 $fractional\ cover\ of\ boulders\ in\ the\ drawdown\ zone\ using\ FC_BOULDERS_DD\ (mean (wt A_dd,\ wt B_dd...$

FCFCBOULDERS_DD wtJ_dd))

 $FCFCBOULDERS_LIT \\ fractional cover of boulders in the littoral zone using FC_BOULDERS (mean(wtA_lit, wtB_lit, ... wtJ_lit)) \\$

fractional cover of boulders simulating what would be present within 10m of full-pool shoreline if

there was zero drawdown using FC_BOULDERS, FC_BOULDERS_DD, HORIZ_DIST_DD

FCFCBOULDERS_SIM (mean(wtA_sim, wtB_sim, ... wtJ_sim))

FCFCBRUSH fractional cover of brush using FC_BRUSH (mean(wtA, wtB... wtJ))

 $fractional\ cover\ of\ brush\ in\ the\ drawdown\ zone\ using\ FC_BRUSH_DD\ (mean(wtA_dd,\ wtB_dd...)$

FCFCBRUSH_DD wtJ_dd))

FCFCBRUSH_LIT fractional cover of brush in the littoral zone using FC_BRUSH (mean(wtA_lit, wtB_lit, ... wtJ_lit))

fractional cover of brush simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_BRUSH, FC_BRUSH_DD, HORIZ_DIST_DD (mean(wtA_sim, wtB_sim, ...

FCFCBRUSH_SIM wtJ_sim)

FCFCLEDGES fractional cover of ledges using FC_LEDGES (mean(wtA, wtB... wtJ))

 $fractional\ cover\ of\ ledges\ in\ the\ drawdown\ zone\ using\ FC_LEDGES_DD\ (mean(wtA_dd,\ wtB_dd...$

FCFCLEDGES_DD wtJ_dd))

FCFCLEDGES_LIT fractional cover of ledges in the littoral zone using FC_LEDGES (mean(wtA_lit, wtB_lit, ... wtJ_lit))

fractional cover of ledges simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_LEDGES, FC_LEDGES_DD, HORIZ_DIST_DD (mean(wtA_sim, wtB_sim,

FCFCLEDGES_SIM ... wtJ_sim))

FCFCLIVETREES fractional cover of live trees using FC_LIVETREES (mean(wtA, wtB... wtJ))

fractional cover of live trees in the drawdown zone using FC_LIVETREES_DD (mean(wtA_dd, wtB_dd...

FCFCLIVETREES_DD wtJ_dd))

FCFCLIVETREES_LIT fractional cover of live trees in the littoral zone using FC_LIVETREES (mean(wtA_lit, wtB_lit, ... wtJ_lit))

fractional cover of live trees simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_LIVETREES, FC_LIVETREES_DD, HORIZ_DIST_DD (mean(wtA_sim,

FCFCLIVETREES_SIM wtB_sim, ... wtJ_sim))

FCFCOVERHANG fractional cover of overhangs using FC_OVERHANG (mean(wtA, wtB... wtJ))

fractional cover of overhangs in the drawdown zone using FC_OVERHANG_DD (mean(wtA_dd,

FCFCOVERHANG_DD wtB_dd... wtJ_dd))

fractional cover of overhangs in the littoral zone using FC OVERHANG (mean(wtA lit, wtB lit, ... FCFCOVERHANG_LIT wtJ_lit)) fractional cover of overhangs simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_OVERHANG, FC_OVERHANG_DD, HORIZ_DIST_DD FCFCOVERHANG SIM (mean(wtA sim, wtB sim, ... wtJ sim)) **FCFCSNAG** fractional cover of snags using FC_SNAG (mean(wtA, wtB... wtJ)) fractional cover of snags in the drawdown zone using FC SNAG DD (mean(wtA dd, wtB dd... FCFCSNAGS DD wtJ_dd)) FCFCSNAGS_LIT fractional cover of snags in the littoral zone using FC_SNAG (mean(wtA_lit, wtB_lit, ... wtJ_lit)) fractional cover of snags simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC SNAG, FC SNAG DD, HORIZ DIST DD (mean(wtA sim, wtB sim, ... FCFCSNAGS SIM wtJ sim)) **FCFCSTRUCTURES** fractional cover of artificial structures using FC_STRUCTURES (mean(wtA, wtB... wtJ)) fractional cover of artificial structures in the drawdown zone using FC_STRUCTURES_DD FCFCSTRUCTURES_DD (mean(wtA_dd, wtB_dd... wtJ_dd)) fractional cover of artificial structures in the littoral zone using FC STRUCTURES (mean(wtA lit, FCFCSTRUCTURES LIT wtB lit, ... wtJ lit)) fractional cover of artificial structures simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC STRUCTURES, FC STRUCTURES DD, FCFCSTRUCTURES_SIM HORIZ_DIST_DD (mean(wtA_sim, wtB_sim, ... wtJ_sim)) fractional presence of any fish cover using FC_AQUATIC, FC_BOULDERS, FC_BRUSH, FC_LEDGES, **FCFPALL** FC TREES, FC OVERHANG, FC SNAG, FC STRUCTURES (mean(atA, atB... atJ)) fractional cover of any fish cover in the drawdown zone using FC AQUATIC DD, FC BOULDERS DD, FC_BRUSH_DD, FC_LEDGES_DD, FC_TREES_DD, FC_OVERHANG_DD, FC_SNAG_DD, FCFPALL_DD FC_STRUCTURES_DD (mean(wtA_dd, wtB_dd... wtJ_dd)) fractional cover of any fish cover in the littoral zone using FC_AQUATIC, FC_BOULDERS, FC_BRUSH, FC_LEDGES, FC_TREES, FC_OVERHANG, FC_SNAG, FC_STRUCTURES (mean(wtA_lit, wtB_lit, ... FCFPALL LIT wtJ lit)) fractional cover of any fish cover simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_AQUATIC, FC_BOULDERS, FC_BRUSH, FC_LEDGES, FC_TREES, FC_OVERHANG, FC_SNAG, FC_STRUCTURES, FC_AQUATIC_DD, FC_BOULDERS_DD, FC_BRUSH_DD, FC_LEDGES_DD, FC_TREES_DD, FC_OVERHANG_DD, FC_SNAG_DD, FCFPALL SIM FC_STRUCTURES_DD, HORIZ_DIST_DD (mean(wtA_sim, wtB_sim, ... wtJ_sim)) **FCFPAQUATIC** fractional presence of aquatic vegetation using FC AQUATIC (mean(atA, atB... atJ)) fractional presence of aquatic vegetation in the drawdown zone using FC_AQUATIC_DD (mean(atA, FCFPAQUATIC_DD atB... atJ)) FCFPAQUATIC_LIT fractional presence of aquatic vegetation in the littoral zone using FC_AQUATIC (mean(atA, atB... atJ)) fractional presence of aquatic vegetation simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC AQUATIC, FC AQUATIC DD, HORIZ DIST DD FCFPAQUATIC_SIM (mean(atA_sim, atB_sim, ... atJ_sim)) **FCFPBOULDERS** fractional presence of boulders using FC BOULDERS (mean(atA, atB... atJ)) fractional presence of boulders in the drawdown zone using FC_BOULDERS_DD (mean(atA, atB... FCFPBOULDERS_DD atJ)) FCFPBOULDERS_LIT fractional presence of boulders in the littoral zone using FC_BOULDERS (mean(atA, atB... atJ)) fractional presence of boulders simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC BOULDERS, FC BOULDERS DD, HORIZ DIST DD FCFPBOULDERS_SIM (mean(atA_sim, atB_sim, ... atJ_sim)) **FCFPBRUSH** fractional presence of brush using FC_BRUSH (mean(atA, atB... atJ))

fractional presence of brush in the drawdown zone using FC_BRUSH_DD (mean(atA, atB... atJ))

FCFPBRUSH_DD

FCFPBRUSH_LIT fractional presence of brush in the littoral zone using FC_BRUSH (mean(atA, atB... atJ))

fractional presence of brush simulating what would be present within 10m of full-pool shoreline if

there was zero drawdown using FC_BRUSH, FC_BRUSH_DD, HORIZ_DIST_DD (mean(atA_sim,

atB sim, ... atJ sim))

FCFPLEDGES fractional presence of ledges using FC_LEDGES (mean(atA, atB... atJ))

FCFPLEDGES_DD fractional presence of ledges in the drawdown zone using FC_LEDGES_DD (mean(atA, atB... atJ))

FCFPLEDGES_LIT fractional presence of ledges in the littoral zone using FC_LEDGES (mean(atA, atB... atJ))

fractional presence of ledges simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_LEDGES, FC_LEDGES_DD, HORIZ_DIST_DD (mean(atA_sim,

atB sim, ... atJ sim))

FCFPLIVETREES fractional presence of live trees using FC_LIVETREES (mean(atA, atB... atJ))

FCFPLIVETREES_DD fractional presence of live trees in the drawdown zone using FC_LIVETREES_DD (mean(atA, atB... atJ))

FCFPLIVETREES_LIT fractional presence of live trees in the littoral zone using FC_LIVETREES (mean(atA, atB... atJ.))

fractional presence of live trees simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_LIVETREES, FC_LIVETREES_DD, HORIZ_DIST_DD (mean(atA_sim,

atB_sim, ... atJ_sim))

FCFPOVERHANG fractional presence of overhangs using FC_OVERHANG (mean(atA, atB... atJ))

fractional presence of overhangs in the drawdown zone using FC_OVERHANG_DD (mean(atA, atB...

FCFPOVERHANG_DD atJ))

FCFPBRUSH SIM

FCFPLEDGES SIM

FCFPLIVETREES SIM

FCFPOVERHANG_LIT fractional presence of overhangs in the littoral zone using FC_OVERHANG (mean(atA, atB... atJ))

fractional presence of overhangs simulating what would be present within 10m of full-pool shoreline

if there was zero drawdown using FC_OVERHANG, FC_OVERHANG_DD, HORIZ_DIST_DD

FCFPOVERHANG_SIM (mean(atA_sim, atB_sim, ... atJ_sim))

FCFPSNAG fractional presence of snags using FC_SNAG (mean(atA, atB... atJ))

FCFPSNAGS_DD fractional presence of snags in the drawdown zone using FC_SNAG_DD (mean(atA, atB... atJ))

FCFPSNAGS_LIT fractional presence of snags in the littoral zone using FC_SNAG (mean(atA, atB... atJ))

fractional presence of snags simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_SNAG, FC_SNAG_DD, HORIZ_DIST_DD (mean(atA_sim, atB_sim,

FCFPSNAGS_SIM ... atJ_sim))

FCFPSTRUCTURES fractional presence of artificial structures using FC STRUCTURES (mean(atA, atB... atb))

fractional presence of artificial structures in the drawdown zone using FC_STRUCTURES_DD

FCFPSTRUCTURES_DD (mean(atA, atB... atJ))

fractional presence of artificial structures in the littoral zone using FC_STRUCTURES (mean(atA, atB...

FCFPSTRUCTURES_LIT at.

fractional presence of artificial structures simulating what would be present within 10m of full-pool

shoreline if there was zero drawdown using FC_STRUCTURES, FC_STRUCTURES_DD,

FCFPSTRUCTURES_SIM HORIZ_DIST_DD (mean(atA_sim, atB_sim, ... atJ_sim))

index of total fish cover using fcfcAquatic, fcfcBoulders, fcfcBrush, fcfcLedges, fcfcLivetrees, fcfcOverhang, fcfcSnag, fcfcStructures (sum(fc_Aquatic, fc_Boulders, fc_Brush, fc_Ledges,

FCIALL fc_Livetrees, fc_Overhang, fc_Snag, fc_Structures))

index of total fish cover in the drawdown zone using FC_AQUATIC_DD, FC_BOULDERS_DD, FC_BRUSH_DD, FC_LEDGES_DD, FC_TREES_DD, FC_OVERHANG_DD, FC_SNAG_DD, FC_STRUCTURES_DD (sum(fc_Aquatic_DD, fc_Boulders_DD, fc_Brush_DD, fc_Ledges_DD,

FCIALL_DD fc_Structures_DD), fc_Structures_DD))

FC_LEDGES, FC_TREES, FC_OVERHANG, FC_SNAG, FC_STRUCTURES (sum(fc_Aquatic, fc_Boulders, FCIALL_LIT fc_Brush, fc_Ledges, fc_Livetrees, fc_Overhang, fc_Snag, fc_Structures)) index of total fish cover simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC AQUATIC, FC BOULDERS, FC BRUSH, FC LEDGES, FC TREES, FC_OVERHANG, FC_SNAG, FC_STRUCTURES, FC_AQUATIC_DD, FC_BOULDERS_DD, FC_BRUSH_DD, FC_LEDGES_DD, FC_TREES_DD, FC_OVERHANG_DD, FC_SNAG_DD, FC_STRUCTURES_DD, HORIZ_DIST_DD (sum(fc_Aquatic_SIM, fc_Boulders_SIM, fc_Brush_SIM, FCIALL SIM fc_Ledges_SIM, fc_Livetrees_SIM, fc_Overhang_SIM, fc_Snag_SIM, fc_Structures_SIM)) index of fish cover due to large structures using fc Boulders, fc Ledges, fc Overhang, fc Structures **FCIBIG** (sum(fc_Boulders, fc_Ledges, fc_Overhang, fc_Structures)) index of fish cover due to large structures in the drawdown zone using fc_Boulders_DD, fc_Ledges_DD, fc_Overhang_DD, fc_Structures_DD (sum(fc_Boulders_DD, fc_Ledges_DD, FCIBIG_DD fc_Overhang_DD, fc_Structures_DD)) index of fish cover due to large structures in the littoral zone using fc Boulders, fc Ledges, FCIBIG LIT fc_Overhang, fc_Structures (sum(fc_Boulders, fc_Ledges, fc_Overhang, fc_Structures)) index of fish cover due to large structures simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using fc_Boulders, fc_Ledges, fc_Overhang, fc_Structures, fc_Boulders_DD, fc_Ledges_DD, fc_Overhang_DD, fc_Structures_DD, HORIZ_DIST_DD FCIBIG SIM (sum(fc Boulders, fc Ledges, fc Overhang, fc Structures)) index of fish cover due to natural structures using fc_Aquatic, fc_Boulders, fc_Brush, fc_Ledges, fc_Livetrees fc_Overhang, fc_Snag (sum(fc_Aquatic, fc_Boulders, fc_Brush, fc_Ledges, fc_Livetrees **FCINATURAL** fc_Overhang, fc_Snag)) index of fish cover due to natural structures in the drawdown zone using fc_Aquatic_DD, fc_Boulders_DD, fc_Brush_DD, fc_Ledges_DD, fc_Livetrees_DD, fc_Overhang_DD, fc_Snag_DD (sum(fc_Aquatic_DD, fc_Boulders_DD, fc_Brush_DD, fc_Ledges_DD, fc_Livetrees_DD, FCINATURAL DD fc_Overhang_DD, fc_Snag_DD)) index of fish cover due to natural structures in the littoral zone using fc_Aquatic, fc_Boulders, fc_Brush, fc_Ledges, fc_Livetrees fc_Overhang, fc_Snag (sum(fc_Aquatic, fc_Boulders, fc_Brush, FCINATURAL_LIT fc_Ledges, fc_Livetrees fc_Overhang, fc_Snag)) index of fish cover due to natural structures simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using fc_Aquatic, fc_Boulders, fc_Brush, fc_Ledges, fc_Livetrees fc_Overhang, fc_Snag, fc_Aquatic_DD, fc_Boulders_DD, fc_Brush_DD, fc_Ledges_DD, fc_Livetrees_DD, fc_Overhang_DD, fc_Snag_DD, HORIZ_DIST_DD (sum(fc_Aquatic_SIM, FCINATURAL_SIM fc_Boulders_SIM, fc_Brush_SIM, fc_Ledges_SIM, fc_Livetrees_SIM, fc_Overhang_SIM, fc_Snag_SIM)) index of fish cover due to riparian vegetation using fc_Brush, fc_Livetrees, fc_Snag (sum(fc_Brush, **FCIRIPVEG** fc Livetrees, fc Snag)) index of fish cover due to riparian vegetation in the drawdown zone using fc Brush DD, FCIRIPVEG_DD fc_Livetrees_DD, fc_Snag_DD (sum(fc_Brush_DD, fc_Livetrees_DD, fc_Snag_DD)) index of fish cover due to riparian vegetation in the littoral zone using fc_Brush, fc_Livetrees, fc_Snag, FCIRIPVEG_LIT (sum(fc_Brush, fc_Livetrees, fc_Snag,)) index of fish cover due to riparian vegetation simulating what would be present within 10m of full-pool

sum(fc Brush SIM, fc Livetrees SIM, fc Snag SIM))

FC_OVERHANG, FC_SNAG, FC_STRUCTURES (sum(fcn*))

FCIRIPVEG SIM

FCNALL

index of total fish cover in the littoral zone using FC_AQUATIC, FC_BOULDERS, FC_BRUSH,

shoreline if there was zero drawdown using fc_Brush_SIM, fc_Livetrees_SIM, fc_Snag_SIM (

 $number\ of\ fish\ cover\ data\ using\ FC_AQUATIC,\ FC_BOULDERS,\ FC_BRUSH,\ FC_LEDGES,\ FC_TREES,$

number of fish cover values in the drawdown using FC_AQUATIC_DD, FC_BOULDERS_DD, FC_BRUSH_DD, FC_LEDGES_DD, FC_TREES_DD, FC_OVERHANG_DD, FC_SNAG_DD,

FCNALL_DD FC_STRUCTURES_DD (sum(fcn*_DD))

number of fish cover values in the littoral zone using FC_AQUATIC, FC_BOULDERS, FC_BRUSH,

FC_LEDGES, FC_TREES, FC_OVERHANG, FC_SNAG, FC_STRUCTURES (sum(fcn*))

 $number\ of\ fish\ cover\ data\ simulating\ what\ would\ be\ present\ within\ 10m\ of\ full-pool\ shoreline\ if\ there\ was\ zero\ drawdown\ using\ FC_AQUATIC,\ FC_BOULDERS,\ FC_BRUSH,\ FC_LEDGES,\ FC_TREES,$

FC_OVERHANG, FC_SNAG, FC_STRUCTURES, FC_AQUATIC_DD, FC_BOULDERS_DD, FC_BRUSH_DD, FC_LEDGES_DD, FC_TREES_DD, FC_OVERHANG_DD, FC_SNAG_DD,

FCNALL_SIM FC_STRUCTURES_DD, HORIZ_DIST_DD (sum(fcn*_SIM))

FCNAQUATIC number of aquatic vegetation using FC_AQUATIC (count(atA, atB... atJ))

 $number\ of\ aquatic\ vegetation\ values\ in\ the\ drawdown\ using\ FC_AQUATIC_DD\ (count(atA_DD,$

 $\begin{tabular}{ll} FCNAQUATIC_DD & atB_DD, ... atJ_DD)) \end{tabular}$

FCNALL LIT

FCNAQUATIC_LIT number of aquatic vegetation values in the littoral zone using FC_AQUATIC (count(atA, atB... atJ))

number of aquatic vegetation data simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC AQUATIC, FC AQUATIC DD, HORIZ DIST DD (count(atA SIM,

FCNAQUATIC_SIM atB_SIM, ... atJ_SIM))

FCNBOULDERS number of boulders using FC_BOULDERS (count(atA, atB... atJ))

number of boulders values in the drawdown using FC_BOULDERS_DD (count(atA_DD, atB_DD, ...

FCNBOULDERS_DD atJ_DD))

FCNBOULDERS_LIT number of boulders values in the littoral zone using FC_BOULDERS (count(atA, atB... atJ))

number of boulders data simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_BOULDERS, FC_BOULDERS_DD, HORIZ_DIST_DD (count(atA_SIM,

FCNBOULDERS_SIM atB_SIM, ... atJ_SIM))

FCNBRUSH number of brush using FC_BRUSH (count(atA, atB... atJ))

FCNBRUSH_DD number of brush values in the drawdown using FC_BRUSH_DD (count(atA_DD, atB_DD, ... atJ_DD))

FCNBRUSH_LIT number of brush values in the littoral zone using FC_BRUSH (count(atA, atB... atJ))

number of brush data simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_BRUSH, FC_BRUSH_DD, HORIZ_DIST_DD (count(atA_SIM, atB_SIM, ...

FCNBRUSH_SIM atJ_SIM))

FCNLEDGES number of ledges using FC_LEDGES (count(atA, atB... atJ))

FCNLEDGES_DD number of ledges values in the drawdown using FC_LEDGES_DD (count(atA_DD, atB_DD, ... atJ_DD))

FCNLEDGES_LIT number of ledges values in the littoral zone using FC_LEDGES (count(atA, atB... atJ))

number of ledges data simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_LEDGES, FC_LEDGES_DD, HORIZ_DIST_DD (count(atA_SIM, atB_SIM, ...

FCNLEDGES_SIM atJ_SIM))

FCNLIVETREES (count(atA, atB... atJ))

number of live trees values in the drawdown using FC_LIVETREES_DD (count(atA_DD, atB_DD, ...

FCNLIVETREES_DD atJ_DD))

FCNLIVETREES_LIT number of live trees values in the littoral zone using FC_LIVETREES (count(atA, atB... atJ))

number of live trees data simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_LIVETREES, FC_LIVETREES_DD, HORIZ_DIST_DD (count(atA_SIM,

FCNLIVETREES_SIM atB_SIM, ... atJ_SIM))

FCNOVERHANG (count(atA, atB... atJ))

number of overhangs values in the drawdown using FC_OVERHANG_DD (count(atA_DD, atB_DD, ...

FCNOVERHANG_DD atJ_DD))

FCNOVERHANG_LIT number of overhangs values in the littoral zone using FC_OVERHANG (count(atA, atB... atJ))

number of overhangs data simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_OVERHANG, FC_OVERHANG_DD, HORIZ_DIST_DD (count(atA_SIM,

atB_SIM, ... atJ_SIM))

FCNSNAG number of snags using FC_SNAG (count(atA, atB... at))

FCNSNAGS_DD number of snags values in the drawdown using FC_SNAG_DD (count(atA_DD, atB_DD, ... atJ_DD))

FCNSNAGS_LIT number of snags values in the littoral zone using FC_SNAG (count(atA, atB... atJ))

number of snags data simulating what would be present within 10m of full-pool shoreline if there was

zero drawdown using FC_SNAG, FC_SNAG_DD, HORIZ_DIST_DD (count(atA_SIM, atB_SIM, ...

FCNSNAGS_SIM atJ_SIM))

FCNOVERHANG_SIM

FCNSTRUCTURES number of artificial structures using FC_STRUCTURES (count(atA, atB... atJ))

number of artificial structures values in the drawdown using FC_STRUCTURES_DD (count(atA_DD,

FCNSTRUCTURES_DD atB_DD, ... atJ_DD))

number of artificial structures values in the littoral zone using FC_STRUCTURES (count(atA, atB...

FCNSTRUCTURES_LIT atJ

number of artificial structures data simulating what would be present within 10m of full-pool

 $shore line if there was zero \ drawdown \ using \ FC_STRUCTURES, \ FC_STRUCTURES_DD,$

FCNSTRUCTURES_SIM HORIZ_DIST_DD (count(atA_SIM, atB_SIM, ... atJ_SIM))

FCVAQUATIC std dev. of aquatic vegetation using FC_AQUATIC (stdev(wtA, wtB... wtJ))

std dev. of aquatic vegetation in the drawdown zone using FC_AQUATIC_DD (stdev(atA_DD, atB_DD,

FCVAQUATIC_DD ... atJ_DD))

FCVAQUATIC_LIT std dev. of aquatic vegetation in the littoral zone using FC_AQUATIC (stdev(atA, atB... atl))

std dev. of aquatic vegetation simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_AQUATIC, FC_AQUATIC_DD, HORIZ_DIST_DD (stdev(atA_SIM,

FCVAQUATIC_SIM atB_SIM, ... atJ_SIM))

FCVBOULDERS std dev. of boulders using FC_BOULDERS (stdev(wtA, wtB... wtJ))

std dev. of boulders in the drawdown zone using FC_BOULDERS_DD (stdev(atA_DD, atB_DD, ...

FCVBOULDERS_DD atJ_DD

FCVBOULDERS SIM

FCVBOULDERS_LIT std dev. of boulders in the littoral zone using FC_BOULDERS (stdev(atA, atB... atJ))

std dev. of boulders simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_BOULDERS, FC_BOULDERS_DD, HORIZ_DIST_DD (stdev(atA_SIM, atB_SIM,

... atJ SIM))

FCVBRUSH std dev. of brush using FC_BRUSH (stdev(wtA, wtB... wtJ))

FCVBRUSH_DD std dev. of brush in the drawdown zone using FC_BRUSH_DD (stdev(atA_DD, atB_DD, ... atJ_DD))

FCVBRUSH_LIT std dev. of aquatic vegetation in the littoral zone using FC_BRUSH (stdev(atA, atB... atJ))

std dev. of aquatic vegetation simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_BRUSH, FC_BRUSH_DD, HORIZ_DIST_DD (stdev(atA_SIM,

FCVBRUSH_SIM atB_SIM, ... atJ_SIM))

FCVLEDGES std dev. of ledges using FC_LEDGES (stdev(wtA, wtB... wtJ))

FCVLEDGES_DD std dev. of ledges in the drawdown zone using FC_LEDGES_DD (stdev(atA_DD, atB_DD, ... atJ_DD))

FCVLEDGES_LIT std dev. of ledges in the littoral zone using FC_LEDGES (stdev(atA, atB... atJ))

std dev. of ledges simulating what would be present within 10m of full-pool shoreline if there was zero

drawdown using FC_LEDGES, FC_LEDGES_DD, HORIZ_DIST_DD (stdev(atA_SIM, atB_SIM, ...

FCVLEDGES_SIM atJ_SIM))

FCVLIVETREES std dev. of live trees using FC_LIVETREES (stdev(wtA, wtB... wtJ))

std dev. of live trees in the drawdown zone using FC_LIVETREES_DD (stdev(atA_DD, atB_DD, ...

FCVLIVETREES_DD atJ_DD))

FCVLIVETREES_LIT std dev. of live trees in the littoral zone using FC_LIVETREES (stdev(atA, atB... atJ))

std dev. of live trees simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_LIVETREES, FC_LIVETREES_DD, HORIZ_DIST_DD (stdev(atA_SIM, atB_SIM,

FCVLIVETREES_SIM ... atJ_SIM))

FCVOVERHANG std dev. of overhangs using FC_OVERHANG (stdev(wtA, wtB... wtJ))

std dev. of overhangs in the drawdown zone using FC OVERHANG DD (stdev(atA DD, atB DD, ... FCVOVERHANG_DD atJ_DD)) FCVOVERHANG LIT std dev. of overhangs in the littoral zone using FC_OVERHANG (stdev(atA, atB... atJ)) std dev. of overhangs simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC_OVERHANG, FC_OVERHANG_DD, HORIZ_DIST_DD (stdev(atA_SIM, FCVOVERHANG SIM atB SIM, ... atJ SIM)) **FCVSNAG** std dev. of snags using FC_SNAG (stdev(wtA, wtB... wtJ)) FCVSNAGS_DD std dev. of snags in the drawdown zone using FC_SNAG_DD (stdev(atA_DD, atB_DD, ... atJ_DD)) std dev. of snags in the littoral zone using FC_SNAG (stdev(atA, atB... atJ)) FCVSNAGS LIT std dev. of snags simulating what would be present within 10m of full-pool shoreline if there was zero FCVSNAGS SIM drawdown using FC_SNAG, FC_SNAG_DD, HORIZ_DIST_DD (stdev(atA_SIM, atB_SIM, ... atJ_SIM)) **FCVSTRUCTURES** std dev. of artificial structures using FC_STRUCTURES (stdev(wtA, wtB... wtJ)) std dev. of artificial structures in the drawdown zone using FC_STRUCTURES_DD (stdev(atA_DD, FCVSTRUCTURES_DD atB_DD, ... atJ_DD)) FCVSTRUCTURES LIT std dev. of artificial structures in the littoral zone using FC STRUCTURES (stdev(atA, atB... atJ)) std dev. of artificial structures simulating what would be present within 10m of full-pool shoreline if there was zero drawdown using FC STRUCTURES, FC STRUCTURES DD, HORIZ DIST DD FCVSTRUCTURES_SIM (stdev(atA_SIM, atB_SIM, ... atJ_SIM)) fractional presence of any influence using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, **HIFPANY** HI WALLS (mean(anyAtA, anyAtB, ... anyAtJ)) fractional presence of any influence in the drawdown zone using HI BUILDINGS DD, HI_COMMERCIAL_DD, HI_CROPS_DD, HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HI_PASTURE_DD, HI_POWERLINES_DD, HI_ROADS_DD, HIFPANY_DD HI_WALLS_DD (mean(anyDDAtA, anyDDAtB, ... anyDDAtJ)) fractional presence of any influence in the riparian zone using HI_BUILDINGS, HI_COMMERCIAL, HI CROPS, HI DOCKS, HI LANDFILL, HI LAWN, HI ORCHARD, HI PARK, HI PASTURE, HIFPANY_RIP HI_POWERLINES, HI_ROADS, HI_WALLS (mean(anyAtA, anyAtB, ... anyAtJ)) fractional presence of any influence synthesizing the 2007 protocol using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS, HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_CROPS_DD, HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HI PASTURE DD, HI POWERLINES DD, HORIZ DIST DD (mean(anySIMAtA, anySIMAtB, ... HIFPANY_SYN anySIMAtJ)) fractional presence of any influence occuring in station plots using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HIFPANYCIRCA HI_POWERLINES, HI_ROADS, HI_WALLS (mean(anyAtA=C, anyAtB=C, ... anyAtJ=C)) fractional presence of any influence occuring in station plots in the drawdown zone using

HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_CROPS_DD, HI_DOCKS_DD, HI_LANDFILL_DD,
HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HI_PASTURE_DD, HI_POWERLINES_DD,
HI_ROADS_DD, HI_WALLS_DD (mean(anyDDAtA, anyDDAtB, ... anyDDAtB))

fractional presence of any influence occurring in station plots in the riparian zone using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS (mean(anyAtA, anyAtB, ... anyAtJ))

HIFPANYCIRCA_RIP

fractional presence of any influence occuring in station plots synthesizing the 2007 protocol using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS, HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_CROPS_DD, HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HI_PASTURE_DD, HI_POWERLINES_DD, HORIZ_DIST_DD (mean(anySIMAtA, anySIMAtB, ... anySIMAtJ)) index of agricultural influences using hipwCrops, hipwOrchard, hipwPasture, (sum of individual

weighted means of agricultural influences)

influences (note nonstandard weights).)

index of agricultural influences in the drawdown zone using hi_Crops_DD, hi_Orchard_DD, hi_Pasture_DD (sum of individual weighted means of agricultural influences in the drawdown zone)

index of agricultural influences in the riparian zone using hi_Crops, hi_Orchard, hi_Pasture (sum of

individual weighted means of agricultural influences in the riparian zone)

index of agricultural influences synthesizing the 2007 protocol using hi_Crops, hi_Orchard, hi_Pasture. hi_Crops_DD, hi_Orchard_DD, hi_Pasture_DD, HORIZ_DIST_DD (sum of individual weighted means of agricultural influences synthesizing the 2007 protocol) index of agricultural influences occuring close to shore using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS (sum of all individual weighted means of agricultural

index of agricultural influences occuring close to shore in the drawdown zone using HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_CROPS_DD, HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HI_PASTURE_DD, HI_POWERLINES_DD, HI_ROADS_DD, HI_WALLS_DD (sum of all individual weighted means of agricultural influences (note nonstandard weights). in the drawdown zone)

index of agricultural influences occuring close to shore in the riparian zone using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS (sum of all individual weighted means of agricultural influences (note nonstandard weights). in the riparian zone)

index of agricultural influences occuring close to shore synthesizing the 2007 protocol using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS, HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_CROPS_DD, HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HORIZ_DIST_DD (sum of all individual weighted means of agricultural influences (note nonstandard weights). synthesizing the 2007 protocol) index of all human influences using hipwBuildings, hipwCommercial, hipwCrops, hipwDocks, hipwLandfill, hipwLawn, hipwOrchard, hipwPark, hipwPasture, hipwPowerlines, hipwRoads, hipwWalls (sum(hipw*))

index of all human influences in the drawdown zone using hi_Buildings_DD, hi_Commercial_DD, hi_Crops_DD, hi_Docks_DD, hi_Landfill_DD, hi_Lawn_DD, hi_Orchard_DD, hi_Park_DD, hi_Pasture_DD, hi_Powerlines_DD, hi_Roads_DD, hi_Walls_DD (sum(hipw*) in the drawdown zone) index of all human influences in the riparian zone using hi_Buildings, hi_Commercial, hi_Crops, hi_Docks, hi_Landfill, hi_Lawn, hi_Orchard, hi_Park, hi_Pasture, hi_Powerlines, hi_Roads, hi_Walls (sum(hipw*) in the riparian zone)

index of all human influences synthesizing the 2007 protocol using hi_Buildings, hi_Commercial, hi_Crops, hi_Docks, hi_Landfill, hi_Lawn, hi_Orchard, hi_Park, hi_Pasture, hi_Powerlines, hi_Roads, hi_Walls, hi_Buildings_DD, hi_Commercial_DD, hi_Crops_DD, hi_Docks_DD, hi_Landfill_DD, hi_Lawn_DD, hi_Orchard_DD, hi_Park_DD, hi_Pasture_DD, hi_Powerlines_DD, hi_Roads_DD, hi_Walls_DD, HORIZ_DIST_DD (sum(hipw*) synthesizing the 2007 protocol)

HIFPANYCIRCA SYN

HIIAG

HIIAG DD

HIIAG_RIP

HIIAG SYN

HIIAGCIRCA

HIIAGCIRCA_DD

HIIAGCIRCA_RIP

HIIAGCIRCA_SYN

HIIALL

HIIALL_DD

HIIALL_RIP

HIIALL_SYN

HIIALLCIRCA

HIIALLCIRCA_DD

HIIALLCIRCA RIP

HIIALLCIRCA SYN

HIINONAG

HIINONAG DD

HIINONAG_RIP

HIINONAG_SYN

HIINONAGCIRCA

HIINONAGCIRCA DD

HIINONAGCIRCA RIP

index of all influences occuring close to shore using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS (sum of all individual weighted means (note nonstandard weights).) index of all influences occuring close to shore in the drawdown zone using HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_CROPS_DD, HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HI_PASTURE_DD, HI_POWERLINES_DD, HI_ROADS_DD, HI_WALLS_DD (sum of all individual weighted means (note nonstandard weights). in the drawdown zone)

index of all influences occuring close to shore in the riparian zone using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS (sum of all individual weighted means (note nonstandard weights). in the riparian zone)

index of all influences occuring close to shore synthesizing the 2007 protocol using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS, HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_CROPS_DD, HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HORIZ_DIST_DD (sum of all individual weighted means (note nonstandard weights). synthesizing the 2007 protocol)

index of nonagricultural influences using hipwBuildings, hipwCommercial, hipwDocks, hipwLandfill, hipwLawn, hipwPowerlines, hipwRoads, hipwWalls (sum of individual weighted means of nonagricultural influences)

index of nonagricultural influences in the drawdown zone using hi_Buildings_DD, hi_Commercial_DD, hi_Docks_DD, hi_Landfill_DD, hi_Lawn_DD, hi_Park_DD, hi_Powerlines_DD, hi_Roads_DD, hi_Walls_DD (sum of individual weighted means of nonagricultural influences in the drawdown zone)

index of nonagricultural influences in the riparian zone using hi_Buildings, hi_Commercial, hi_Docks, hi_Landfill, hi_Lawn, hi_Park, hi_Powerlines, hi_Roads, hi_Walls (sum of individual weighted means of nonagricultural influences in the riparian zone)

index of nonagricultural influences synthesizing the 2007 protocol using hi_Buildings, hi_Commercial, hi_Docks, hi_Landfill, hi_Lawn, hi_Park, hi_Powerlines, hi_Roads, hi_Walls, hi_Buildings_DD, hi_Commercial_DD, hi_Docks_DD, hi_Landfill_DD, hi_Lawn_DD, hi_Park_DD, hi_Powerlines_DD, hi_Roads_DD, hi_Walls_DD, HORIZ_DIST_DD (sum of individual weighted means of nonagricultural influences synthesizing the 2007 protocol) index of nonagricultural influences occuring close to shore using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS (sum of all individual weighted means of nonagricultural influences (note nonstandard weights).)

index of nonagricultural influences occuring close to shore in the drawdown zone using HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_CROPS_DD, HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HI_PASTURE_DD, HI_POWERLINES_DD, HI_ROADS_DD, HI_WALLS_DD (sum of all individual weighted means of nonagricultural influences (note nonstandard weights). in the drawdown zone)

index of nonagricultural influences occuring close to shore in the riparian zone using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS (sum of all individual weighted means of nonagricultural influences (note nonstandard weights). in the riparian zone)

index of nonagricultural influences occuring close to shore synthesizing the 2007 protocol using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS, HI_BUILDINGS_DD, HI COMMERCIAL DD, HI CROPS DD, HI DOCKS DD, HI LANDFILL DD, HI LAWN DD, HI_ORCHARD_DD, HI_PARK_DD, HI_PASTURE_DD, HI_POWERLINES_DD, HI_ROADS_DD, HI WALLS DD, HORIZ DIST DD (sum of all individual weighted means of nonagricultural influences (note nonstandard weights). synthesizing the 2007 protocol)

HIINONAGCIRCA_SYN

count of all values used using HI_CROPS, HI_ORCHARD, HI_PASTURE (count(atA, atB... atJ))

count of all values used in the drawdown zone using HI CROPS DD. HI ORCHARD DD.

HI_PASTURE_DD (count(atA, atB... atJ) in the drawdown zone) HINAG DD

count of all values used in the riparian zone using HI CROPS, HI ORCHARD, HI PASTURE (count(atA,

HINAG RIP atB... atJ) in the riparian zone)

count of all values used synthesizing the 2007 protocol using HI_CROPS, HI_ORCHARD,

HI_PASTURE, HI_CROPS_DD, HI_ORCHARD_DD, HI_PASTURE_DD, HORIZ_DIST_DD (count(atA,

atB... atJ) synthesizing the 2007 protocol)

 $count of all \, values \, used \, using \, HI_BUILDINGS, \, HI_COMMERCIAL, \, HI_CROPS, \, HI_DOCKS, \,$ HI LANDFILL, HI LAWN, HI ORCHARD, HI PARK, HI PASTURE, HI POWERLINES, HI ROADS,

HI_WALLS (count(atA, atB... atJ))

count of all values used in the drawdown zone using HI BUILDINGS DD, HI COMMERCIAL DD, HI_CROPS_DD, HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HI_PASTURE_DD, HI_POWERLINES_DD, HI_ROADS_DD, HI_WALLS_DD (count(atA, atB... atJ) in the

drawdown zone)

count of all values used in the riparian zone using HI BUILDINGS, HI COMMERCIAL, HI CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES,

HINALL RIP HI ROADS, HI WALLS (count(atA, atB... atJ) in the riparian zone)

> count of all values used synthesizing the 2007 protocol using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE,

HI POWERLINES, HI ROADS, HI WALLS, HI BUILDINGS DD, HI COMMERCIAL DD, HI CROPS DD. HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HORIZ_DIST_DD

(count(atA, atB... atJ) synthesizing the 2007 protocol) count of values using HI_BUILDINGS (count(atA, atB... atJ))

count of values in the drawdown zone using HI_BUILDINGS_DD (count(atA, atB... atJ) in the

drawdown zone)

HINBUILDINGS RIP count of values in the riparian zone using HI_BUILDINGS (count(atA, atB... atJ) in the riparian zone)

count of values synthesizing the 2007 protocol using HI_BUILDINGS, HI_BUILDINGS_DD,

HINBUILDINGS_SYN HORIZ_DIST_DD (count(atA, atB... atJ) synthesizing the 2007 protocol)

count of values using HI_COMMERCIAL (count(atA, atB... atJ))

count of values in the drawdown zone using HI_COMMERCIAL_DD (count(atA, atB... atJ) in the

drawdown zone)

HINCOMMERCIAL RIP count of values in the riparian zone using HI_COMMERCIAL (count(atA, atB... atJ) in the riparian zone)

count of values synthesizing the 2007 protocol using HI_COMMERCIAL, HI_COMMERCIAL_DD,

HINCOMMERCIAL_SYN HORIZ_DIST_DD (count(atA, atB... atJ) synthesizing the 2007 protocol)

count of values using HI_CROPS (count(atA, atB... atJ))

count of values in the drawdown zone using HI_CROPS_DD (count(atA, atB... atJ) in the drawdown

zone)

HINCROPS RIP count of values in the riparian zone using HI_CROPS (count(atA, atB... atJ) in the riparian zone)

count of values synthesizing the 2007 protocol using HI_CROPS, HI_CROPS_DD, HORIZ_DIST_DD

(count(atA, atB... atJ) synthesizing the 2007 protocol) count of values using HI_DOCKS (count(atA, atB... atJ))

HINAG

HINAG_SYN

HINALL

HINALL_DD

HINALL SYN HINBUILDINGS

HINBUILDINGS_DD

HINCOMMERCIAL

HINCOMMERCIAL_DD

HINCROPS

HINCROPS DD

HINCROPS_SYN **HINDOCKS**

count of values in the drawdown zone using HI DOCKS DD (count(atA, atB... atJ) in the drawdown HINDOCKS_DD zone) HINDOCKS RIP count of values in the riparian zone using HI_DOCKS (count(atA, atB... atJ) in the riparian zone) count of values synthesizing the 2007 protocol using HI DOCKS, HI DOCKS DD, HORIZ DIST DD HINDOCKS SYN (count(atA, atB... atJ) synthesizing the 2007 protocol) HINLANDFILL count of values using HI LANDFILL (count(atA, atB... atJ)) count of values in the drawdown zone using HI_LANDFILL_DD (count(atA, atB... atJ) in the drawdown HINLANDFILL_DD zone) HINLANDFILL RIP count of values in the riparian zone using HI_LANDFILL (count(atA, atB... atJ) in the riparian zone) count of values synthesizing the 2007 protocol using HI LANDFILL, HI LANDFILL DD, HINLANDFILL_SYN HORIZ_DIST_DD (count(atA, atB... atJ) synthesizing the 2007 protocol) HINLAWN count of values using HI_LAWN (count(atA, atB... atJ)) count of values in the drawdown zone using HI_LAWN_DD (count(atA, atB... atJ) in the drawdown HINLAWN_DD zone) HINLAWN RIP count of values in the riparian zone using HI LAWN (count(atA, atB... atJ) in the riparian zone) count of values synthesizing the 2007 protocol using HI_LAWN, HI_LAWN_DD, HORIZ_DIST_DD HINLAWN SYN (count(atA, atB... atJ) synthesizing the 2007 protocol) count of all values used using HI_BUILDINGS, HI_COMMERCIAL, HI_DOCKS, HI_LANDFILL, HINNONAG HI_LAWN, HI_PARK, HI_POWERLINES, HI_ROADS, HI_WALLS (count(atA, atB... atJ)) count of all values used in the drawdown zone using HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI DOCKS DD, HI LANDFILL DD, HI LAWN DD, HI PARK DD, HI POWERLINES DD, HINNONAG DD HI_ROADS_DD, HI_WALLS_DD (count(atA, atB... atJ) in the drawdown zone) count of all values used in the riparian zone using HI_BUILDINGS, HI_COMMERCIAL, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_PARK, HI_POWERLINES, HI_ROADS, HI_WALLS (count(atA, atB... atJ) in HINNONAG RIP the riparian zone) count of all values used synthesizing the 2007 protocol using HI BUILDINGS, HI COMMERCIAL, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_PARK, HI_POWERLINES, HI_ROADS, HI_WALLS, HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_PARK_DD, HI_POWERLINES_DD, HI_ROADS_DD, HI_WALLS_DD, HORIZ_DIST_DD (count(atA, HINNONAG_SYN atB... atJ) synthesizing the 2007 protocol) HINORCHARD count of values using HI_ORCHARD (count(atA, atB... atJ)) count of values in the drawdown zone using HI ORCHARD DD (count(atA, atB... atJ) in the drawdown HINORCHARD_DD zone) HINORCHARD_RIP count of values in the riparian zone using HI_ORCHARD (count(atA, atB... atJ) in the riparian zone) count of values synthesizing the 2007 protocol using HI_ORCHARD, HI_ORCHARD_DD, HINORCHARD SYN HORIZ DIST DD (count(atA, atB... atJ) synthesizing the 2007 protocol) count of values in the drawdown zone using HI_OTHER_DD (count(atA, atB... atJ) synthesizing the HINOTHER DD 2007 protocol in the drawdown zone) count of values in the riparian zone using HI_OTHER (count(atA, atB... atJ) synthesizing the 2007 HINOTHER_RIP protocol in the riparian zone) count of values synthesizing the 2007 protocol using HI_OTHER, HI_OTHER_DD, HORIZ_DIST_DD HINOTHER SYN (count(atA, atB... atJ) synthesizing the 2007 protocol synthesizing the 2007 protocol) **HINPARK** count of values using HI PARK (count(atA, atB... atJ)) count of values in the drawdown zone using HI_PARK_DD (count(atA, atB... atJ) in the drawdown HINPARK_DD zone)

count of values in the riparian zone using HI_PARK (count(atA, atB... atJ) in the riparian zone)

HINPARK_RIP

count of values synthesizing the 2007 protocol using HI PARK, HI PARK DD, HORIZ DIST DD (count(atA, atB... atJ) synthesizing the 2007 protocol) HINPARK_SYN HINPASTURE count of values using HI_PASTURE (count(atA, atB... atJ)) count of values in the drawdown zone using HI_PASTURE_DD (count(atA, atB... atJ) in the drawdown HINPASTURE DD zone) HINPASTURE RIP count of values in the riparian zone using HI PASTURE (count(atA, atB... atJ) in the riparian zone) count of values synthesizing the 2007 protocol using HI_PASTURE, HI_PASTURE_DD, HORIZ_DIST_DD HINPASTURE_SYN (count(atA, atB... atJ) synthesizing the 2007 protocol) HINPOWERLINES count of values using HI_POWERLINES (count(atA, atB... atJ)) count of values in the drawdown zone using HI POWERLINES DD (count(atA, atB... atJ) in the HINPOWERLINES DD drawdown zone) HINPOWERLINES RIP count of values in the riparian zone using HI_POWERLINES (count(atA, atB... atJ) in the riparian zone) count of values synthesizing the 2007 protocol using HI_POWERLINES, HI_POWERLINES_DD, HINPOWERLINES_SYN HORIZ_DIST_DD (count(atA, atB... atJ) synthesizing the 2007 protocol) HINROADS count of values using HI_ROADS (count(atA, atB... atJ)) count of values in the drawdown zone using HI ROADS DD (count(atA, atB... atJ) in the drawdown HINROADS DD zone) HINROADS_RIP count of values in the riparian zone using HI_ROADS (count(atA, atB... atJ) in the riparian zone) count of values synthesizing the 2007 protocol using HI_ROADS, HI_ROADS_DD, HORIZ_DIST_DD HINROADS SYN (count(atA, atB... atJ) synthesizing the 2007 protocol) **HINWALLS** count of values using HI WALLS (count(atA, atB... atJ)) count of values in the drawdown zone using HI_WALLS_DD (count(atA, atB... atJ) in the drawdown HINWALLS DD HINWALLS_RIP count of values in the riparian zone using HI_WALLS (count(atA, atB... atJ) in the riparian zone) count of values synthesizing the 2007 protocol using HI_WALLS, HI_WALLS_DD, HORIZ_DIST_DD HINWALLS SYN (count(atA, atB... atJ) synthesizing the 2007 protocol) weighted presence of agricultural influences using HI_CROPS, HI_ORCHARD, HI_PASTURE **HIPWAG** (mean(wtA, wtB, ... wtJ)) weighted presence of agricultural influences in the drawdown zone using HI_CROPS_DD, HIPWAG_DD HI_ORCHARD_DD, HI_PASTURE_DD (mean(wtA, wtB, ... wtJ) in the drawdown zone) weighted presence of agricultural influences in the riparian zone using HI_CROPS, HI_ORCHARD, HIPWAG RIP HI_PASTURE (mean(wtA, wtB, ... wtJ) in the riparian zone) weighted presence of agricultural influences synthesizing the 2007 protocol using HI_CROPS, HI_ORCHARD, HI_PASTURE, HI_CROPS_DD, HI_ORCHARD_DD, HI_PASTURE_DD, HORIZ_DIST_DD HIPWAG_SYN (mean(wtA, wtB, ... wtJ) synthesizing the 2007 protocol) w1_hall using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS (mean(wtA, wtB... HIPWALL wtJ) including all types)

w1_hall in the drawdown zone using HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_CROPS_DD,
HI_DOCKS_DD, HI_LANDFILL_DD, HI_LAWN_DD, HI_ORCHARD_DD, HI_PARK_DD, HI_PASTURE_DD,
HI_POWERLINES_DD, HI_ROADS_DD, HI_WALLS_DD (mean(wtA, wtB... wtJ) including all types in the
HIPWALL_DD drawdown zone)

w1_hall in the riparian zone using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS,

HIPWALL_RIP HI_WALLS (mean(wtA, wtB... wtJ) including all types in the riparian zone)

w1_hall synthesizing the 2007 protocol using HI_BUILDINGS, HI_COMMERCIAL, HI_CROPS, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_ORCHARD, HI_PARK, HI_PASTURE, HI_POWERLINES, HI_ROADS, HI_WALLS, HI_BUILDINGS_DD, HI_COMMERCIAL_DD, HI_CROPS_DD, HI_DOCKS_DD, HI LANDFILL DD, HI LAWN DD, HI ORCHARD DD, HI PARK DD, HI PASTURE DD,

HI POWERLINES DD, HI ROADS DD, HI WALLS DD, HORIZ DIST DD (mean(wtA, wtB... wtJ)

including all types synthesizing the 2007 protocol)

HIPWBUILDINGS weighted presence of Buildings using HI_BUILDINGS (mean(wtA, wtB... wtJ))

weighted presence of Buildings in the drawdown zone using HI_BUILDINGS_DD (mean(wtA, wtB...

wtJ) in the drawdown zone)

weighted presence of Buildings in the riparian zone using HI BUILDINGS (mean(wtA, wtB... wtJ) in the

HIPWBUILDINGS RIP riparian zone)

HIPWALL SYN

HIPWBUILDINGS_DD

HIPWCOMMERCIAL

HIPWCOMMERCIAL DD

HIPWCOMMERCIAL RIP

HIPWCROPS

HIPWCROPS DD

HIPWCROPS RIP

HIPWDOCKS

HIPWDOCKS DD

HIPWLANDFILL SYN

HIPWLAWN

HIPWLAWN_DD

weighted presence of Buildings synthesizing the 2007 protocol using HI_BUILDINGS, HIPWBUILDINGS_SYN

HI_BUILDINGS_DD, HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

weighted presence of Commercial using HI_COMMERCIAL (mean(wtA, wtB... wtJ))

weighted presence of Commercial in the drawdown zone using HI_COMMERCIAL_DD (mean(wtA,

wtB... wtJ) in the drawdown zone)

weighted presence of Commercial in the riparian zone using HI COMMERCIAL (mean(wtA, wtB... wtJ)

in the riparian zone)

weighted presence of Commercial synthesizing the 2007 protocol using HI_COMMERCIAL, HIPWCOMMERCIAL_SYN HI_COMMERCIAL_DD, HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

weighted presence of Crops using HI_CROPS (mean(wtA, wtB... wtJ))

weighted presence of Crops in the drawdown zone using HI CROPS DD (mean(wtA, wtB... wtJ) in the

drawdown zone)

weighted presence of Crops in the riparian zone using HI CROPS (mean(wtA, wtB... wtJ) in the

riparian zone)

weighted presence of Crops synthesizing the 2007 protocol using HI_CROPS, HI_CROPS_DD, HIPWCROPS SYN

HORIZ DIST DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol) weighted presence of Docks using HI_DOCKS (mean(wtA, wtB... wtJ))

weighted presence of Docks in the drawdown zone using HI DOCKS DD (mean(wtA, wtB... wtJ) in the

drawdown zone)

weighted presence of Docks in the riparian zone using HI_DOCKS (mean(wtA, wtB... wtJ) in the

HIPWDOCKS_RIP riparian zone)

weighted presence of Docks synthesizing the 2007 protocol using HI_DOCKS, HI_DOCKS_DD,

HIPWDOCKS SYN HORIZ DIST DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol) **HIPWLANDFILL** weighted presence of Landfill using HI_LANDFILL (mean(wtA, wtB... wtJ))

weighted presence of Landfill in the drawdown zone using HI_LANDFILL_DD (mean(wtA, wtB... wtJ) in

HIPWLANDFILL_DD the drawdown zone)

weighted presence of Landfill in the riparian zone using HI_LANDFILL (mean(wtA, wtB... wtJ) in the

HIPWLANDFILL_RIP riparian zone)

weighted presence of Landfill synthesizing the 2007 protocol using HI_LANDFILL, HI_LANDFILL_DD,

HORIZ DIST DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol) weighted presence of Lawn using HI_LAWN (mean(wtA, wtB... wtJ))

weighted presence of Lawn in the drawdown zone using HI_LAWN_DD (mean(wtA, wtB... wtJ) in the

drawdown zone)

weighted presence of Lawn in the riparian zone using HI_LAWN (mean(wtA, wtB... wtJ) in the riparian

HIPWLAWN RIP zone)

weighted presence of Lawn synthesizing the 2007 protocol using HI_LAWN, HI_LAWN_DD,

HIPWLAWN_SYN HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_PARK, HI_POWERLINES, HI_ROADS, HI_WALLS (mean(wtA, **HIPWNONAG** wtB... wtJ) including Buildings, Commercial, Docks, Landfill, Lawn, Park, Powerlines, Roads, Walls) weighted presence of non-agricultural influences in the drawdown zone using HI_BUILDINGS, HI COMMERCIAL, HI DOCKS, HI LANDFILL, HI LAWN, HI PARK, HI POWERLINES, HI ROADS, HI_WALLS (mean(wtA, wtB... wtJ) including Buildings, Commercial, Docks, Landfill, Lawn, Park, HIPWNONAG_DD Powerlines, Roads, Walls in the drawdown zone) weighted presence of non-agricultural influences in the riparian zone using HI BUILDINGS. HI_COMMERCIAL, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_PARK, HI_POWERLINES, HI_ROADS, HI WALLS (mean(wtA, wtB... wtJ) including Buildings, Commercial, Docks, Landfill, Lawn, Park, HIPWNONAG RIP Powerlines, Roads, Walls in the riparian zone) weighted presence of non-agricultural influences synthesizing the 2007 protocol using HI_BUILDINGS, HI_COMMERCIAL, HI_DOCKS, HI_LANDFILL, HI_LAWN, HI_PARK, HI_POWERLINES, HI_ROADS, HI_WALLS (mean(wtA, wtB... wtJ) including Buildings, Commercial, Docks, Landfill, Lawn, HIPWNONAG SYN Park, Powerlines, Roads, Walls synthesizing the 2007 protocol) HIPWORCHARD weighted presence of Orchard using HI_ORCHARD (mean(wtA, wtB... wtJ)) weighted presence of Orchard in the drawdown zone using HI ORCHARD DD (mean(wtA, wtB... wtJ) HIPWORCHARD_DD in the drawdown zone) weighted presence of Orchard in the riparian zone using HI_ORCHARD (mean(wtA, wtB... wtJ) in the HIPWORCHARD_RIP riparian zone) weighted presence of Orchard synthesizing the 2007 protocol using HI_ORCHARD, HIPWORCHARD SYN HI ORCHARD DD, HORIZ DIST DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol) weighted presence of Other in the drawdown zone using HI_OTHER_DD (mean(wtA, wtB... wtJ) in the HIPWOTHER_DD drawdown zone) weighted presence of Other in the riparian zone using HI_OTHER (mean(wtA, wtB... wtJ) in the riparian HIPWOTHER RIP zone) weighted presence of Other synthesizing the 2007 protocol using HI OTHER, HI OTHER DD, HIPWOTHER SYN HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol) **HIPWPARK** weighted presence of Park using HI_PARK (mean(wtA, wtB... wtJ)) weighted presence of Park in the drawdown zone using HI_PARK_DD (mean(wtA, wtB... wtJ) in the HIPWPARK_DD drawdown zone) weighted presence of Park in the riparian zone using HI_PARK (mean(wtA, wtB... wtJ) in the riparian HIPWPARK RIP zone) weighted presence of Park synthesizing the 2007 protocol using HI_PARK, HI_PARK_DD, HIPWPARK_SYN HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol) **HIPWPASTURE** weighted presence of Pasture using HI_PASTURE (mean(wtA, wtB... wtJ)) weighted presence of Pasture in the drawdown zone using HI_PASTURE_DD (mean(wtA, wtB... wtJ) in HIPWPASTURE DD the drawdown zone) weighted presence of Pasture in the riparian zone using HI_PASTURE (mean(wtA, wtB... wtJ) in the HIPWPASTURE RIP riparian zone) weighted presence of Pasture synthesizing the 2007 protocol using HI_PASTURE, HI_PASTURE_DD, HIPWPASTURE_SYN HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol) **HIPWPOWERLINES** weighted presence of Powerlines using HI_POWERLINES (mean(wtA, wtB... wtJ)) weighted presence of Powerlines in the drawdown zone using HI_POWERLINES_DD (mean(wtA, HIPWPOWERLINES DD wtB... wtJ) in the drawdown zone)

the riparian zone)

HIPWPOWERLINES_RIP

weighted presence of non-agricultural influences using HI_BUILDINGS, HI_COMMERCIAL,

weighted presence of Powerlines in the riparian zone using HI_POWERLINES (mean(wtA, wtB... wtJ) in

weighted presence of Powerlines synthesizing the 2007 protocol using HI_POWERLINES,

HIPWPOWERLINES_SYN HI_POWERLINES_DD, HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

HIPWROADS weighted presence of Roads using HI_ROADS (mean(wtA, wtB... wtJ))

weighted presence of Roads in the drawdown zone using HI_ROADS_DD (mean(wtA, wtB... wtJ) in the

HIPWROADS_DD drawdown zone)

weighted presence of Roads in the riparian zone using HI_ROADS (mean(wtA, wtB... wtJ) in the

HIPWROADS_RIP riparian zone)

weighted presence of Roads synthesizing the 2007 protocol using HI_ROADS, HI_ROADS_DD,

HIPWROADS_SYN HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)
HIPWWALLS weighted presence of Walls using HI_WALLS (mean(wtA, wtB... wtJ))

weighted presence of Walls in the drawdown zone using HI WALLS DD (mean(wtA, wtB... wtJ) in the

HIPWWALLS_DD drawdown zone)

weighted presence of Walls in the riparian zone using HI_WALLS (mean(wtA, wtB... wtJ) in the riparian

HIPWWALLS_RIP zone)

weighted presence of Walls synthesizing the 2007 protocol using HI_WALLS, HI_WALLS_DD,

HIPWWALLS_SYN HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

HORIZDD Horizontal drawdown distance

LitCvrQc3OE NLA 2012 Shallow water habitat condition indicator
LitRipCvrQc3OE NLA 2012 Lake habitat complexity condition indicator

LMFPARTIFICIAL fractional presence of artificial fish cover using COVER_ARTIFICIAL (mean(atA, atB... atJ))

fraction of dominant substrate that is Bedrock using DOM_SUBSTRATE (count(BedrockA, BedrockB,

LMFPBEDROCK ... BedrockJ))

LMFPBOULDERS fractional presence of boulder fish cover using COVER_BOULDERS (mean(atA, atB... atl))

fraction of dominant substrate that is Cobble using DOM_SUBSTRATE (count(CobbleA, CobbleB, ...

LMFPCOBBLE CobbleJ))

fractional presence of continuous littoral fish cover using COVER_CLASS (mean(ContinuousA,

LMFPCONTINUOUS ContinuousB, ... ContinuousJ))

LMFPFILL fractional presence of fill fish cover using COVER_FILL (mean(atA, atB... atJ))

fractional presence of little or no littoral fish cover using ,'COVER_VEG',

LMFPLITTLE 'COVER_WOODY' (mean(noCoverA, noCoverB... noCoverJ))

LMFPMUD fraction of dominant substrate that is Mud using DOM_SUBSTRATE (count(MudA, MudB, ... MudJ))

LMFPNONE fractional presence of no fish cover using COVER_NONE (mean(atA, atB... atJ))

fractional presence of patchy littoral fish cover using COVER_CLASS (mean(PatchyA, PatchyB, \dots

LMFPPATCHY PatchyJ))

LMFPSAND fraction of dominant substrate that is Sand using DOM_SUBSTRATE (count(SandA, SandB, ... SandJ))

LMFPVEG fractional presence of vegetation fish cover using COVER_VEG (mean(atA, atB... atJ))

LMFPWOODY fractional presence of woody fish cover using COVER_WOODY (mean(atA, atB... atJ))

LMNCOVER number of macrohabitat data using COVER_CLASS (count(atA, atB... atJ))

Count of stations at which we have cover type data using COVER_ARTIFICIAL, COVER_BOULDERS,

LMNCOVERTYPES COVER_HILL, COVER_WOODY, COVER_VEG, COVER_NONE (count(atA, atB... atJ.))

LMNHUMAN count of human disturbance values using HUMAN_DISTURBANCE (count(atA,atB, ... atJ))

LMNSUBSTRATE count of dominant substrate class data using DOM_SUBSTRATE (count(atA, atB... atJ))

Mode of littoral fish cover type using ,'COVER_FILL', 'COVER_NONE'

LMOCOVER (mode(COVER_CLASS))

LMOSUBSTRATE mode of dominant substrate class using DOM_SUBSTRATE (mode(dom_substrate))

LMPWHUMAN weighted presence of human disturbance using HUMAN_DISTURBANCE (mean(wtA,wtB, ... wtJ))

LZFPALGAE fractional presence of littoral algal film using SURFACE_FILM (mean(atA, atB... atJ))

LZFPFILM fractional presence of any type of film other than 'None' using SURFACE_FILM (mean(atA, atB... at))

LZFPNONE fractional presence of no littoral film using SURFACE_FILM (mean(atA, atB... atJ))
LZFPOILY fractional presence of littoral oily film using SURFACE_FILM (mean(atA, atB... atJ))

LZFPOTHER fractional presence of littoral other film using SURFACE_FILM (mean(atA, atB... atJ))

LZFPSCUM fractional presence of littoral scum film using SURFACE_FILM (mean(atA, atB... at)))

mean(count of film types other than 'None' at each station) using SURFACE_FILM

LZIFILMVARIETY (mean(countOfTypesAtA, countOfTypesAtB, ... countOfTypesAtJ))

LZOFILM mode of surface film type using SURFACE_FILM (mode(surface_film))

RDis_IX NLA 2012 Lakeshore disturbance condition indicator RVegQc3OE NLA 2012 Riparian vegetation condition indicator

RVFCCANBIG fraction of canopy cover by trees >30 cm dbh using C_BIGTREES (mean(wtA, wtB... wtJ))

fraction of canopy cover by trees >30 cm dbh in the drawdown zone using C_BIGTREES_DD

RVFCCANBIG_DD (mean(wtA, wtB... wtJ) in the drawdown zone)

fraction of canopy cover by trees >30 cm dbh in the riparian zone using C BIGTREES (mean(wtA,

RVFCCANBIG_RIP wtB... wtJ) in the riparian zone)

fraction of canopy cover by trees >30 cm dbh synthesizing the 2007 protocol using C_BIGTREES, RVFCCANBIG_SYN C_BIGTREES_DD, HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

RVFCCANSMALL fraction of canopy cover by trees <30 cm dbh using C_SMALLTREES (mean(wtA, wtB... wtJ))

fraction of canopy cover by trees <30 cm dbh in the drawdown zone using C_SMALLTREES_DD

RVFCCANSMALL_DD (mean(wtA, wtB... wtJ) in the drawdown zone)

fraction of canopy cover by trees <30 cm dbh in the riparian zone using C_SMALLTREES (mean(wtA,

RVFCCANSMALL_RIP wtB... wtJ) in the riparian zone)

fraction of canopy cover by trees <30 cm dbh synthesizing the 2007 protocol using C_SMALLTREES, RVFCCANSMALL_SYN

C_SMALLTREES_DD, HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

fraction of ground lacking cover using GC_BARE (mean(wtA, wtB... wtJ))

fraction of ground lacking cover in the drawdown zone using GC_BARE_DD (mean(wtA, wtB... wtJ) in

RVFCGNDBARE_DD the drawdown zone)

fraction of ground lacking cover in the riparian zone using GC_BARE (mean(wtA, wtB... wtJ) in the

RVFCGNDBARE_RIP riparian zone)

RVFCGNDBARE

RVFCGNDNONW_DD

fraction of ground lacking cover synthesizing the 2007 protocol using GC_BARE, GC_BARE_DD,

RVFCGNDBARE_SYN HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

RVFCGNDINUNDATED fraction of ground cover by inundation using GC_INUNDATED (mean(wtA, wtB... wtJ))

fraction of ground cover by inundation in the drawdown zone using GC INUNDATED DD (mean(wtA,

RVFCGNDINUNDATED_DD wtB... wtJ) in the drawdown zone)

fraction of ground cover by inundation in the riparian zone using GC INUNDATED (mean(wtA, wtB...

RVFCGNDINUNDATED_RIP wtJ) in the riparian zone)

fraction of ground cover by inundation synthesizing the 2007 protocol using GC_INUNDATED,

RVFCGNDINUNDATED_SYN

GC_INUNDATED_DD, HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

RVFCGNDNONW fraction of ground cover by herbaceous vegetation using GC NONWOODY (mean(wtA, wtB... wtJ))

fraction of ground cover by herbaceous vegetation in the drawdown zone using GC_NONWOODY_DD

(mean(wtA, wtB... wtJ) in the drawdown zone)

fraction of ground cover by herbaceous vegetation in the riparian zone using GC_NONWOODY

RVFCGNDNONW_RIP (mean(wtA, wtB... wtJ) in the riparian zone)

fraction of grour	d cover by herbaceous vegetation synthesizing the 2007 protocol using
GC_NONWOOD	Y, GC_NONWOODY_DD, HORIZ_DIST_DD (mean(wtA, wtB wtJ) synthesizing the
2007 protocol)	

RVFCGNDWOODY	fraction of ground cover by woody vegetation using GC_WOODY (mean(wtA, wtB wtJ))
	fraction of ground cover by woody vegetation in the drawdown zone using GC_WOODY_DD

RVFCGNDWOODY DD (mean(wtA, wtB... wtJ) in the drawdown zone) fraction of ground cover by woody vegetation in the riparian zone using GC_WOODY (mean(wtA,

RVFCGNDWOODY_RIP wtB... wtJ) in the riparian zone)

fraction of ground cover by woody vegetation synthesizing the 2007 protocol using GC WOODY. RVFCGNDWOODY SYN GC_WOODY_DD, HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

RVFCUNDNONW fraction of understory cover by nonwoody vegetation using U_NONWOODY (mean(wtA, wtB... wtJ)) fraction of understory cover by nonwoody vegetation in the drawdown zone using U_NONWOODY_DD

RVFCUNDNONW_DD (mean(wtA, wtB... wtJ) in the drawdown zone)

fraction of understory cover by nonwoody vegetation in the riparian zone using U_NONWOODY RVFCUNDNONW RIP

(mean(wtA, wtB... wtJ) in the riparian zone)

fraction of understory cover by nonwoody vegetation synthesizing the 2007 protocol using

U_NONWOODY, U_NONWOODY_DD, HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007

protocol)

RVFCGNDNONW_SYN

RVFCUNDNONW SYN

RVFPCANCONIFEROUS_RIP

RVFPCANDECIDUOUS_RIP

RVFCUNDWOODY fraction of understory cover by woody vegetation using U_WOODY (mean(wtA, wtB... wtJ))

fraction of understory cover by woody vegetation in the drawdown zone using U_WOODY_DD RVFCUNDWOODY DD (mean(wtA, wtB... wtJ) in the drawdown zone)

fraction of understory cover by woody vegetation in the riparian zone using U_WOODY (mean(wtA,

RVFCUNDWOODY RIP wtB... wtJ) in the riparian zone)

fraction of understory cover by woody vegetation synthesizing the 2007 protocol using U_WOODY, RVFCUNDWOODY_SYN U_WOODY_DD, HORIZ_DIST_DD (mean(wtA, wtB... wtJ) synthesizing the 2007 protocol)

RVFPCANBIG Fraction of canopy with large trees present using C_BIGTREES (mean(atA, atB... atJ))

Fraction of canopy with large trees present in the drawdown zone using C BIGTREES DD (mean(atA,

RVFPCANBIG_DD atB... atJ) in the drawdown zone)

Fraction of canopy with large trees present in the riparian zone using C_BIGTREES (mean(atA, atB...

RVFPCANBIG_RIP atJ) in the riparian zone)

Fraction of canopy with large trees present synthesizing the 2007 protocol using C_BIGTREES, **RVFPCANBIG SYN** C BIGTREES DD, HORIZ DIST DD (mean(atA, atB... atJ) synthesizing the 2007 protocol)

RVFPCANBROADLEAF fraction of broadleaf evergreen canopy presence using CANOPY (mean(atA, atB... atJ))

fraction of broadleaf evergreen canopy presence in the drawdown zone using CANOPY_DD

RVFPCANBROADLEAF_DD (mean(atA, atB... atJ) in the drawdown zone)

fraction of broadleaf evergreen canopy presence in the riparian zone using CANOPY (mean(atA, atB...

RVFPCANBROADLEAF RIP atJ) in the riparian zone)

RVFPCANCONIFEROUS fraction of coniferous canopy presence using CANOPY (mean(atA, atB... atJ))

fraction of coniferous canopy presence in the drawdown zone using CANOPY_DD (mean(atA, atB...

RVFPCANCONIFEROUS_DD atJ) in the drawdown zone)

fraction of coniferous canopy presence in the riparian zone using CANOPY (mean(atA, atB... atJ) in

the riparian zone)

RVFPCANDECIDUOUS fraction of deciduous canopy presence using CANOPY (mean(atA, atB... atJ))

fraction of deciduous canopy presence in the drawdown zone using CANOPY_DD (mean(atA, atB...

RVFPCANDECIDUOUS DD atJ) in the drawdown zone)

fraction of deciduous canopy presence in the riparian zone using CANOPY (mean(atA, atB... atJ) in the

riparian zone)

RVFPCANMIXED fraction of mixed canopy presence using CANOPY (mean(atA, atB... atJ))

fraction of mixed canopy presence in the drawdown zone using CANOPY DD (mean(atA, atB... atJ) in RVFPCANMIXED_DD the drawdown zone) fraction of mixed canopy presence in the riparian zone using CANOPY (mean(atA, atB... atJ) in the RVFPCANMIXED RIP riparian zone) **RVFPCANNONE** fraction of no canopy present using CANOPY (mean(atA, atB... atJ)) fraction of no canopy present in the drawdown zone using CANOPY_DD (mean(atA, atB... atJ) in the RVFPCANNONE DD drawdown zone) fraction of no canopy present in the riparian zone using CANOPY (mean(atA, atB... atJ) in the riparian RVFPCANNONE_RIP **RVFPCANSMALL** fraction of canopy with small trees present using C SMALLTREES (mean(atA, atB... atJ)) fraction of canopy with small trees present in the drawdown zone using C_SMALLTREES_DD RVFPCANSMALL DD (mean(atA, atB... atJ) in the drawdown zone) fraction of canopy with small trees present in the riparian zone using C_SMALLTREES (mean(atA, RVFPCANSMALL_RIP atB... atJ) in the riparian zone) fraction of canopy with small trees present synthesizing the 2007 protocol using C_SMALLTREES, **RVFPCANSMALL SYN** C_SMALLTREES_DD, HORIZ_DIST_DD (mean(atA, atB... atJ) synthesizing the 2007 protocol) **RVFPGNDBARE** fraction of bare ground presence using GC BARE (mean(atA, atB... atJ)) fraction of bare ground presence in the drawdown zone using GC_BARE_DD (mean(atA, atB... atJ) in RVFPGNDBARE DD the drawdown zone) fraction of bare ground presence in the riparian zone using GC_BARE (mean(atA, atB... atJ) in the RVFPGNDBARE_RIP riparian zone) fraction of bare ground presence synthesizing the 2007 protocol using GC_BARE, GC_BARE_DD, **RVFPGNDBARE SYN** HORIZ DIST DD (mean(atA, atB... atJ) synthesizing the 2007 protocol) RVFPGNDINUNDATED fraction of inundated ground presence using GC INUNDATED (mean(atA, atB... atJ)) fraction of inundated ground presence in the drawdown zone using GC_INUNDATED_DD (mean(atA, RVFPGNDINUNDATED_DD atB... atJ) in the drawdown zone) fraction of inundated ground presence in the riparian zone using GC_INUNDATED (mean(atA, atB... RVFPGNDINUNDATED RIP atJ) in the riparian zone) fraction of inundated ground presence synthesizing the 2007 protocol using GC INUNDATED, RVFPGNDINUNDATED_SYN GC_INUNDATED_DD, HORIZ_DIST_DD (mean(atA, atB... atJ) synthesizing the 2007 protocol) **RVFPGNDNONW** fraction of nonwoody ground cover presence using GC_NONWOODY (mean(atA, atB... atJ)) fraction of nonwoody ground cover presence in the drawdown zone using GC_NONWOODY_DD RVFPGNDNONW DD (mean(atA, atB... atJ) in the drawdown zone) fraction of nonwoody ground cover presence in the riparian zone using GC NONWOODY (mean(atA, RVFPGNDNONW RIP atB... atJ) in the riparian zone) fraction of nonwoody ground cover presence synthesizing the 2007 protocol using GC_NONWOODY, RVFPGNDNONW_SYN GC_NONWOODY_DD, HORIZ_DIST_DD (mean(atA, atB... atJ) synthesizing the 2007 protocol) **RVFPGNDWOODY** fraction of woody ground cover presence using GC_WOODY (mean(atA, atB... atJ)) fraction of woody ground cover presence in the drawdown zone using GC WOODY DD (mean(atA, RVFPGNDWOODY DD atB... atJ) in the drawdown zone) fraction of woody ground cover presence in the riparian zone using GC_WOODY (mean(atA, atB... atJ) RVFPGNDWOODY_RIP in the riparian zone) fraction of woody ground cover presence synthesizing the 2007 protocol using GC_WOODY, RVFPGNDWOODY_SYN GC_WOODY_DD, HORIZ_DIST_DD (mean(atA, atB... atJ) synthesizing the 2007 protocol) **RVFPUNDBROADLEAF** fraction of broadleaf evergreen understory presence using UNDERSTORY (mean(atA, atB... atJ)) fraction of broadleaf evergreen understory presence in the drawdown zone using UNDERSTORY_DD RVFPUNDBROADLEAF_DD (mean(atA, atB... atJ) in the drawdown zone) fraction of broadleaf evergreen understory presence in the riparian zone using UNDERSTORY

(mean(atA, atB... atJ) in the riparian zone)

RVFPUNDBROADLEAF_RIP

RVFPUNDCONIFEROUS fraction of coniferous understory presence using UNDERSTORY (mean(atA, atB... atJ)) fraction of coniferous understory presence in the drawdown zone using UNDERSTORY_DD RVFPUNDCONIFEROUS DD (mean(atA, atB... atJ) in the drawdown zone) fraction of coniferous understory presence in the riparian zone using UNDERSTORY (mean(atA, atB... RVFPUNDCONIFEROUS_RIP atl) in the riparian zone) **RVFPUNDDECIDUOUS** fraction of deciduous understory presence using UNDERSTORY (mean(atA, atB... atJ)) fraction of deciduous understory presence in the drawdown zone using UNDERSTORY_DD (mean(atA, RVFPUNDDECIDUOUS_DD atB... atJ) in the drawdown zone) fraction of deciduous understory presence in the riparian zone using UNDERSTORY (mean(atA, atB... **RVFPUNDDECIDUOUS RIP** atJ) in the riparian zone) **RVFPUNDMIXED** fraction of mixed understory presence using UNDERSTORY (mean(atA, atB... atJ)) fraction of mixed understory presence in the drawdown zone using UNDERSTORY_DD (mean(atA, RVFPUNDMIXED_DD atB... atJ) in the drawdown zone) fraction of mixed understory presence in the riparian zone using UNDERSTORY (mean(atA, atB... atJ) RVFPUNDMIXED_RIP in the riparian zone) **RVFPUNDNONE** fraction of no understory present using UNDERSTORY (mean(atA, atB... atJ)) fraction of no understory present in the drawdown zone using UNDERSTORY DD (mean(atA, atB... atl). RVFPUNDNONE DD in the drawdown zone) fraction of no understory present in the riparian zone using UNDERSTORY (mean(atA, atB... atJ) in the RVFPUNDNONE_RIP riparian zone) **RVFPUNDNONW** fraction of understory with nonwoody cover present using U_NONWOODY (mean(atA, atB... atJ)) fraction of understory with nonwoody cover present in the drawdown zone using U NONWOODY DD RVFPUNDNONW DD (mean(atA, atB... atJ) in the drawdown zone) fraction of understory with nonwoody cover present in the riparian zone using U NONWOODY RVFPUNDNONW RIP (mean(atA, atB... atJ) in the riparian zone) fraction of understory with nonwoody cover present synthesizing the 2007 protocol using U_NONWOODY, U_NONWOODY_DD, HORIZ_DIST_DD (mean(atA, atB... atJ) synthesizing the 2007 RVFPUNDNONW SYN protocol) **RVFPUNDWOODY** fraction of understory with nonwoody cover present using U WOODY (mean(atA, atB... atJ)) fraction of understory with nonwoody cover present in the drawdown zone using U_WOODY_DD RVFPUNDWOODY_DD (mean(atA, atB... atJ) in the drawdown zone) fraction of understory with nonwoody cover present in the riparian zone using U_WOODY (mean(atA, RVFPUNDWOODY_RIP atB... atJ) in the riparian zone) fraction of understory with nonwoody cover present synthesizing the 2007 protocol using U WOODY, **RVFPUNDWOODY SYN** U_WOODY_DD, HORIZ_DIST_DD (mean(atA, atB... atJ) synthesizing the 2007 protocol) index of total canopy cover using C_BIGTREES, C_SMALLTREES (mean(bigA+smallA, bigB+smallB... **RVICANOPY** bigJ+smalU)) index of total canopy cover in the drawdown zone using C_BIGTREES_DD, C_SMALLTREES_DD RVICANOPY DD (mean(bigA+smallA, bigB+smallB... bigJ+smallJ) in the drawdown zone) index of total canopy cover in the riparian zone using C_BIGTREES, C_SMALLTREES RVICANOPY RIP (mean(bigA+smallA, bigB+smallB... bigJ+small) in the riparian zone) index of total canopy cover synthesizing the 2007 protocol using C_BIGTREES, C_SMALLTREES, C_BIGTREES_DD, C_SMALLTREES_DD, HORIZ_DIST_DD (mean(bigA+smallA, bigB+smallB...

> index of total canopy and understory cover using C_BIGTREES, C_SMALLTREES, U_NONWOODY, U WOODY (mean(canBigA+canSmallA+UndWoodyA+undHerbsA,

RVICANUND canBigB+canSmallB+UndWoodyB+undHerbsB...canBigJ+canSmaUA+UndWoodyJ+undHerbsJ))

bigJ+smalU) synthesizing the 2007 protocol)

RVICANOPY_SYN

C_SMALLTREES_DD, U_NONWOODY_DD, U_WOODY_DD (mean(canBigA+canSmallA+UndWoodyA+undHerbsA, canBigB+canSmallB+UndWoodyB+undHerbsB...canBigJ+canSmaUA+UndWoodyJ+undHerbsJ) in the RVICANUND DD drawdown zone) index of total canopy and understory cover in the riparian zone using C BIGTREES, C SMALLTREES, U_NONWOODY, U_WOODY (mean(canBigA+canSmallA+UndWoodyA+undHerbsA, canBigB+canSmallB+UndWoodyB+undHerbsB...canBigJ+canSmaUA+UndWoodyJ+undHerbsJ) in the RVICANUND_RIP riparian zone) index of total canopy and understory cover synthesizing the 2007 protocol using C BIGTREES. C SMALLTREES, U NONWOODY, U WOODY, C BIGTREES DD, C SMALLTREES DD, U NONWOODY DD, U WOODY DD, HORIZ DIST DD (mean(canBigA+canSmallA+UndWoodyA+undHerbsA, canBigB+canSmallB+UndWoodyB+undHerbsB...canBigJ+canSmallA+UndWoodyJ+undHerbsJ) RVICANUND_SYN synthesizing the 2007 protocol) index of total ground cover using GC_INUNDATED, GC_NONWOODY, GC_WOODY RVIGROUND (mean(woodyA+herbA+inundatedA, woodyB+herbB+inundatedB... woodyJ+herbJ+inundatedJ)) index of total ground cover in the drawdown zone using GC_INUNDATED_DD, GC_NONWOODY_DD, GC WOODY DD (mean(woodyA+herbA+inundatedA, woodyB+herbB+inundatedB... RVIGROUND_DD woodyJ+herbJ+inundatedJ) in the drawdown zone) index of total ground cover in the riparian zone using GC_INUNDATED, GC_NONWOODY, GC_WOODY (mean(woodyA+herbA+inundatedA, woodyB+herbB+inundatedB... woodyJ+herbJ+inundatedJ) in the RVIGROUND RIP riparian zone) index of total ground cover synthesizing the 2007 protocol using GC INUNDATED, GC NONWOODY, GC_WOODY, GC_INUNDATED_DD, GC_NONWOODY_DD, GC_WOODY_DD, HORIZ_DIST_DD (mean(woodyA+herbA+inundatedA, woodyB+herbB+inundatedB... woodyJ+herbJ+inundatedJ) RVIGROUND_SYN synthesizing the 2007 protocol) index of total herbaceous vegatation cover using U NONWOODY, GC NONWOODY **RVIHERBS** (mean(undHerbsA+GndHerbsA, undHerbsB+GndHerbsB... undHerbsJ+GndHerbsJ)) index of total herbaceous vegatation cover in the drawdown zone using U NONWOODY DD, GC_NONWOODY_DD (mean(undHerbsA+GndHerbsA, undHerbsB+GndHerbsB... RVIHERBS_DD undHerbsJ+GndHerbsJ) in the drawdown zone) index of total herbaceous vegatation cover in the riparian zone using U_NONWOODY, GC_NONWOODY (mean(undHerbsA+GndHerbsA, undHerbsB+GndHerbsB... RVIHERBS RIP undHerbsJ+GndHerbsJ) in the riparian zone) index of total herbaceous vegatation cover synthesizing the 2007 protocol using U NONWOODY, GC_NONWOODY, U_NONWOODY_DD, GC_NONWOODY_DD, HORIZ_DIST_DD (mean(undHerbsA+GndHerbsA, undHerbsB+GndHerbsB... undHerbsJ+GndHerbsJ) synthesizing the RVIHERBS_SYN 2007 protocol) index of canopy and understory woody vegetation cover using C_BIGTREES, C_SMALLTREES, **RVITALLWOOD** U WOODY (mean(bigA+smallA+UndWoodA, bigB+smallB+UndWoodB... bigJ+smallJ+UndWoodJ)) index of canopy and understory woody vegetation cover in the drawdown zone using C_BIGTREES_DD, C_SMALLTREES_DD, U_WOODY_DD (mean(bigA+smallA+UndWoodA, RVITALLWOOD_DD bigB+smallB+UndWoodB... bigJ+smallJ+UndWoodJ) in the drawdown zone) index of canopy and understory woody vegetation cover in the riparian zone using C_BIGTREES, C_SMALLTREES, U_WOODY (mean(bigA+smallA+UndWoodA, bigB+smallB+UndWoodB... RVITALLWOOD RIP bigJ+smalU+UndWoodJ) in the riparian zone)

index of canopy and understory woody vegetation cover synthesizing the 2007 protocol using C_BIGTREES, C_SMALLTREES, U_WOODY, C_BIGTREES_DD, C_SMALLTREES_DD, U_WOODY_DD,

HORIZ_DIST_DD (mean(bigA+smallA+UndWoodA, bigB+smallB+UndWoodB...

bigJ+smallJ+UndWoodJ) synthesizing the 2007 protocol)

RVITALLWOOD_SYN

index of total canopy and understory cover in the drawdown zone using C BIGTREES DD,

index of total vegetation cover using C BIGTREES, C SMALLTREES, U NONWOODY, U WOODY, $GC_NONWOODY, GC_WOODY (mean(sum(all veg)A, sum(all veg)B... sum(all veg)J) (does not all veg)A, sum(all veg)B... sum(all veg)A, sum(all veg)B... sum(all veg)B... sum(all veg)A, sum(all veg)B... sum(all veg)A, sum(all veg)B... sum(all veg)B..$ **RVITOTALVEG** include bare or inundated ground)) index of total vegetation cover in the drawdown zone using C BIGTREES DD, C SMALLTREES DD, U_NONWOODY_DD, U_WOODY_DD, GC_NONWOODY_DD, GC_WOODY_DD (mean(sum(all veg)A, RVITOTALVEG DD sum(all veg)B... sum(all veg)J) (does not include bare or inundated ground) in the drawdown zone) index of total vegetation cover in the riparian zone using C_BIGTREES, C_SMALLTREES, U_NONWOODY, U_WOODY, GC_NONWOODY, GC_WOODY (mean(sum(all veg)A, sum(all veg)B... RVITOTALVEG RIP sum(all veg)J) (does not include bare or inundated ground) in the riparian zone) index of total vegetation cover synthesizing the 2007 protocol using C BIGTREES, C SMALLTREES, U_NONWOODY, U_WOODY, GC_NONWOODY, GC_WOODY, C_BIGTREES_DD, C_SMALLTREES_DD, U_NONWOODY_DD, U_WOODY_DD, GC_NONWOODY_DD, GC_WOODY_DD, HORIZ_DIST_DD (mean(sum(all veg)A, sum(all veg)B... sum(all veg)J) (does not include bare or inundated ground) RVITOTALVEG_SYN synthesizing the 2007 protocol) index of total understory cover using U_WOODY, U_NONWOODY (mean(woodyA+herbA, RVIUNDERSTORY woodyB+herbB... woodyJ+herbJ)) index of total understory cover in the drawdown zone using U WOODY DD, U NONWOODY DD RVIUNDERSTORY_DD (mean(woodyA+herbA, woodyB+herbB... woodyJ+herbJ) in the drawdown zone) index of total understory cover in the riparian zone using U_WOODY, U_NONWOODY RVIUNDERSTORY RIP (mean(woodyA+herbA, woodyB+herbB... woodyJ+herbJ) in the riparian zone) index of total understory cover synthesizing the 2007 protocol using U WOODY, U NONWOODY, U_WOODY_DD, U_NONWOODY_DD, HORIZ_DIST_DD (mean(woodyA+herbA, woodyB+herbB... RVIUNDERSTORY_SYN woodyJ+herbJ) synthesizing the 2007 protocol) index of total woody vegatation cover using C_BIGTREES, C_SMALLTREES, U_WOODY, GC_WOODY (mean(bigA+smallA+UndWoodA+GndWoodyA, bigB+smallB+UndWoodB+GndWoodyB... RVIWOODY bigJ+smallJ+UndWoodJ+GndWoodyJ)) index of total woody vegatation cover in the drawdown zone using C_BIGTREES_DD, C_SMALLTREES_DD, U_WOODY_DD, GC_WOODY_DD (mean(bigA+smallA+UndWoodA+GndWoodyA, bigB+smallB+UndWoodB+GndWoodyB... RVIWOODY_DD bigJ+smalU+UndWoodJ+GndWoodyJ) in the drawdown zone) index of total woody vegatation cover in the riparian zone using C_BIGTREES, C_SMALLTREES, U_WOODY, GC_WOODY (mean(bigA+smallA+UndWoodA+GndWoodyA, RVIWOODY_RIP bigB+smallB+UndWoodB+GndWoodyB... bigJ+smallJ+UndWoodJ+GndWoodyJ) in the riparian zone) index of total woody vegatation cover synthesizing the 2007 protocol using C_BIGTREES, C SMALLTREES, U WOODY, GC WOODY, C BIGTREES DD, C SMALLTREES DD, U WOODY DD, GC_WOODY_DD, HORIZ_DIST_DD (mean(bigA+smallA+UndWoodA+GndWoodyA, bigB+smallB+UndWoodB+GndWoodyB... bigJ+smalU+UndWoodJ+GndWoodyJ) synthesizing the RVIWOODY_SYN 2007 protocol) **RVNCANBIG** Count of values of canopy cover by trees > 30cm using C_BIGTREES (count(atA, atB... atJ)) Count of values of canopy cover by trees > 30cm in the drawdown zone using C_BIGTREES_DD RVNCANBIG DD (count(atA, atB... atJ) in the drawdown zone) Count of values of canopy cover by trees > 30cm in the riparian zone using C BIGTREES (count(atA, RVNCANBIG_RIP atB... atJ) in the riparian zone)

RVNCANBIG_SYN

Count of values of canopy cover by trees > 30cm synthesizing the 2007 protocol using C_BIGTREES,

C_BIGTREES_DD, HORIZ_DIST_DD (count(atA, atB... atJ) synthesizing the 2007 protocol)

RVNCANOPY number of canopy type data using CANOPY (count(atA, atB... atJ)) number of canopy type data in the drawdown zone using CANOPY_DD (count(atA, atB... atJ) in the RVNCANOPY_DD drawdown zone) number of canopy type data in the riparian zone using CANOPY (count(atA, atB... atJ) in the riparian RVNCANOPY RIP zone) **RVNCANSMALL** Count of values of canopy cover by trees < 30 cm using C SMALLTREES (count(atA, atB... atJ)) Count of values of canopy cover by trees < 30 cm in the drawdown zone using C_SMALLTREES_DD RVNCANSMALL_DD (count(atA, atB... atJ) in the drawdown zone) Count of values of canopy cover by trees < 30 cm in the riparian zone using C_SMALLTREES RVNCANSMALL RIP (count(atA, atB... atJ) in the riparian zone) Count of values of canopy cover by trees < 30 cm synthesizing the 2007 protocol using C SMALLTREES, C SMALLTREES DD, HORIZ DIST DD (count(atA, atB... atJ) synthesizing the 2007 RVNCANSMALL_SYN protocol) **RVNGNDBARE** count of bare ground values using GC_BARE (count(atA, atB... atJ)) count of bare ground values in the drawdown zone using GC_BARE_DD (count(atA, atB... atJ) in the RVNGNDBARE_DD drawdown zone) count of bare ground values in the riparian zone using GC_BARE (count(atA, atB... atJ) in the riparian RVNGNDBARE RIP zone) count of bare ground values synthesizing the 2007 protocol using GC_BARE, GC_BARE_DD, RVNGNDBARE SYN HORIZ DIST DD (count(atA, atB... atJ) synthesizing the 2007 protocol) **RVNGNDINUNDATED** count of ground inundation values using GC_INUNDATED (count(atA, atB... atJ)) count of ground inundation values in the drawdown zone using GC_INUNDATED_DD (count(atA, atB... RVNGNDINUNDATED_DD atl) in the drawdown zone) count of ground inundation values in the riparian zone using GC INUNDATED (count(atA, atB... atJ) in RVNGNDINUNDATED RIP the riparian zone) count of ground inundation values synthesizing the 2007 protocol using GC_INUNDATED, RVNGNDINUNDATED_SYN GC_INUNDATED_DD, HORIZ_DIST_DD (count(atA, atB... atJ) synthesizing the 2007 protocol) **RVNGNDNONW** count of nonwoody ground cover values using GC NONWOODY (count(atA, atB... atJ)) count of nonwoody ground cover values in the drawdown zone using GC_NONWOODY_DD RVNGNDNONW DD (count(atA, atB... atJ) in the drawdown zone) count of nonwoody ground cover values in the riparian zone using GC_NONWOODY (count(atA, atB... RVNGNDNONW_RIP atJ) in the riparian zone) count of nonwoody ground cover values synthesizing the 2007 protocol using GC_NONWOODY, RVNGNDNONW SYN GC_NONWOODY_DD, HORIZ_DIST_DD (count(atA, atB... atJ) synthesizing the 2007 protocol) **RVNGNDWOODY** count of woody ground cover values using GC WOODY (count(atA, atB... atJ)) count of woody ground cover values in the drawdown zone using GC_WOODY_DD (count(atA, atB... RVNGNDWOODY_DD atJ) in the drawdown zone) count of woody ground cover values in the riparian zone using GC_WOODY (count(atA, atB... atJ) in RVNGNDWOODY_RIP the riparian zone) count of woody ground cover values synthesizing the 2007 protocol using GC WOODY, GC_WOODY_DD, HORIZ_DIST_DD (count(atA, atB... atJ) synthesizing the 2007 protocol) RVNGNDWOODY SYN **RVNUNDERSTORY** number of understory type data using UNDERSTORY (count(atA, atB... atJ)) number of understory type data in the drawdown zone using UNDERSTORY_DD (count(atA, atB... atJ) RVNUNDERSTORY_DD in the drawdown zone) number of understory type data in the riparian zone using UNDERSTORY (count(atA, atB... atJ) in the RVNUNDERSTORY_RIP riparian zone)

RVNUNDNONW count of values of understory nonwoody cover using U_NONWOODY (count(atA, atB... atJ))
count of values of understory nonwoody cover in the drawdown zone using U_NONWOODY_DD

country values of analysis y hollwoody cover in the diawdown zone dailing of northwood

RVNUNDNONW_DD (count(atA, atB... atJ) in the drawdown zone)

count of values of understory nonwoody cover in the riparian zone using U_NONWOODY (count(atA,

RVNUNDNONW_RIP atB... atJ) in the riparian zone)

count of values of understory nonwoody cover synthesizing the 2007 protocol using U_NONWOODY, RVNUNDNONW_SYN U_NONWOODY_DD, HORIZ_DIST_DD (count(atA, atB... atJ) synthesizing the 2007 protocol) **RVNUNDWOODY** count of values of understory nonwoody cover using U WOODY (count(atA, atB... atJ)) count of values of understory nonwoody cover in the drawdown zone using U_WOODY_DD RVNUNDWOODY DD (count(atA, atB... atJ) in the drawdown zone) count of values of understory nonwoody cover in the riparian zone using U_WOODY (count(atA, atB... RVNUNDWOODY_RIP atJ) in the riparian zone) count of values of understory nonwoody cover synthesizing the 2007 protocol using U WOODY. RVNUNDWOODY SYN U_WOODY_DD, HORIZ_DIST_DD (count(atA, atB... atJ) synthesizing the 2007 protocol) **RVVCANBIG** stdev of canopy cover by trees > 30 cm dbh using C_BIGTREES (stdev(wtA, wtB... wtJ)) stdev of canopy cover by trees > 30 cm dbh in the drawdown zone using C_BIGTREES_DD (stdev(wtA, RVVCANBIG_DD wtB... wtJ) in the drawdown zone) stdev of canopy cover by trees > 30 cm dbh in the riparian zone using C_BIGTREES (stdev(wtA, wtB... **RVVCANBIG RIP** wtJ) in the riparian zone) stdev of canopy cover by trees > 30 cm dbh synthesizing the 2007 protocol using C_BIGTREES, **RVVCANBIG SYN** C BIGTREES DD, HORIZ DIST DD (stdev(wtA, wtB... wtJ) synthesizing the 2007 protocol) **RVVCANSMALL** stdev of canopy cover by trees < 30 cm dbh using C_SMALLTREES (stdev(wtA, wtB... wtJ)) stdev of canopy cover by trees < 30 cm dbh in the drawdown zone using C_SMALLTREES_DD RVVCANSMALL DD (stdev(wtA, wtB... wtJ) in the drawdown zone) stdev of canopy cover by trees < 30 cm dbh in the riparian zone using C_SMALLTREES (stdev(wtA, RVVCANSMALL RIP wtB... wtJ) in the riparian zone) stdev of canopy cover by trees < 30 cm dbh synthesizing the 2007 protocol using C_SMALLTREES, RVVCANSMALL_SYN C_SMALLTREES_DD, HORIZ_DIST_DD (stdev(wtA, wtB... wtJ) synthesizing the 2007 protocol) **RVVGNDBARE** stdev of ground lacking cover using GC_BARE (stdev(wtA, wtB... wtJ)) stdev of ground lacking cover in the drawdown zone using GC_BARE_DD (stdev(wtA, wtB... wtJ) in the RVVGNDBARE DD drawdown zone) stdev of ground lacking cover in the riparian zone using GC_BARE (stdev(wtA, wtB... wtJ) in the RVVGNDBARE_RIP riparian zone) stdev of ground lacking cover synthesizing the 2007 protocol using GC_BARE, GC_BARE_DD, RVVGNDBARE SYN HORIZ_DIST_DD (stdev(wtA, wtB... wtJ) synthesizing the 2007 protocol) **RVVGNDINUNDATED** stdev of inundated ground cover using GC INUNDATED (stdev(wtA, wtB... wtJ)) stdev of inundated ground cover in the drawdown zone using GC_INUNDATED_DD (stdev(wtA, wtB... RVVGNDINUNDATED_DD wtJ) in the drawdown zone) stdev of inundated ground cover in the riparian zone using GC_INUNDATED (stdev(wtA, wtB... wtJ) in RVVGNDINUNDATED_RIP the riparian zone) stdev of inundated ground cover synthesizing the 2007 protocol using GC INUNDATED, RVVGNDINUNDATED SYN GC_INUNDATED_DD, HORIZ_DIST_DD (stdev(wtA, wtB... wtJ) synthesizing the 2007 protocol) **RVVGNDNONW** stdev of nonwoody ground cover using GC NONWOODY (stdev(wtA, wtB... wtJ)) stdev of nonwoody ground cover in the drawdown zone using GC_NONWOODY_DD (stdev(wtA, wtB... RVVGNDNONW_DD wtJ) in the drawdown zone) stdev of nonwoody ground cover in the riparian zone using GC_NONWOODY (stdev(wtA, wtB... wtJ) in RVVGNDNONW_RIP the riparian zone) stdev of nonwoody ground cover synthesizing the 2007 protocol using GC NONWOODY, RVVGNDNONW_SYN GC_NONWOODY_DD, HORIZ_DIST_DD (stdev(wtA, wtB... wtJ) synthesizing the 2007 protocol)

stdev of woody ground cover using GC_WOODY (stdev(wtA, wtB... wtJ))

the drawdown zone)

stdev of woody ground cover in the drawdown zone using GC_WOODY_DD (stdev(wtA, wtB... wtJ) in

RVVGNDWOODY

RVVGNDWOODY_DD

stdev of woody ground cover in the riparian zone using GC_WOODY (stdev(wtA, wtB... wtJ) in the RVVGNDWOODY_RIP riparian zone)

stdev of woody ground cover synthesizing the 2007 protocol using GC_WOODY, GC_WOODY_DD,

RVVGNDWOODY_SYN HORIZ_DIST_DD (stdev(wtA, wtB... wtJ) synthesizing the 2007 protocol)

RVVUNDNONW stdev of understory cover by nonwoody vegetation using U_NONWOODY (stdev(wtA, wtB... wtJ)) stdev of understory cover by nonwoody vegetation in the drawdown zone using U_NONWOODY_DD

RVVUNDNONW_DD (stdev(wtA, wtB... wtJ) in the drawdown zone)

stdev of understory cover by nonwoody vegetation in the riparian zone using U_NONWOODY

RVVUNDNONW_RIP (stdev(wtA, wtB... wtJ) in the riparian zone)

stdev of understory cover by nonwoody vegetation synthesizing the 2007 protocol using

U NONWOODY, U NONWOODY DD, HORIZ DIST DD (stdev(wtA, wtB... wtJ) synthesizing the 2007

RVVUNDNONW_SYN protocol)

RVVUNDWOODY stdev of understory cover by nonwoody vegetation using U_WOODY (stdev(wtA, wtB... wtJ))

stdev of understory cover by nonwoody vegetation in the drawdown zone using U_WOODY_DD

RVVUNDWOODY_DD (stdev(wtA, wtB... wtJ) in the drawdown zone)

stdev of understory cover by nonwoody vegetation in the riparian zone using U_WOODY (stdev(wtA,

RVVUNDWOODY_RIP wtB... wtJ) in the riparian zone)

stdev of understory cover by nonwoody vegetation synthesizing the 2007 protocol using U_WOODY,

RVVUNDWOODY_SYN U_WOODY_DD, HORIZ_DIST_DD (stdev(wtA, wtB... wtJ) synthesizing the 2007 protocol)

SIFPISLAND fractional presence of stations at an island using ISLAND (mean(islandAtA, islandAtB, ... islandAtJ))

SINDEPTH count of station depth using DEPTH_AT_STATION (count(depthA, depthB, ... depthJ))

SIVDEPTH std dev station depth using DEPTH_AT_STATION (stdev(depthA, depthB, ... depthJ))

SIXDEPTH mean station depth using DEPTH_AT_STATION (mean(depthA, depthB, ... depthJ))

16th percentile of bottom substrate diameter using SS_BEDROCK, SS_BOULDER, SS_COBBLE, SS_GRAVEL, SS_SAND, SS_SILT, SS_ORGANIC, SS_OTHER, SS_WOOD (percentile(16, wtA, wtB, ...

SS16LDIA wtJ))

25th percentile of bottom substrate diameter using SS_BEDROCK, SS_BOULDER, SS_COBBLE, SS_GRAVEL, SS_SAND, SS_SILT, SS_ORGANIC, SS_OTHER, SS_WOOD (percentile(25, wtA, wtB, ...

SS25LDIA w

50th percentile of bottom substrate diameter using SS_BEDROCK, SS_BOULDER, SS_COBBLE, SS_GRAVEL, SS_SAND, SS_SILT, SS_ORGANIC, SS_OTHER, SS_WOOD (percentile(50, wtA, wtB, ...

SS50LDIA wtJ

75th percentile of bottom substrate diameter using SS_BEDROCK, SS_BOULDER, SS_COBBLE, SS_GRAVEL, SS_SAND, SS_SILT, SS_ORGANIC, SS_OTHER, SS_WOOD (percentile(75, wtA, wtB, ...

SS75LDIA wt

84th percentile of bottom substrate diameter using SS_BEDROCK, SS_BOULDER, SS_COBBLE, SS_GRAVEL, SS_SAND, SS_SILT, SS_ORGANIC, SS_OTHER, SS_WOOD (percentile(84 wtA, wtB, ...

fractional presence of gravel using SS_GRAVEL (mean(atA, atB, ... atJ))

SS84LDIA wtJ))

SSFPGRAVEL

SSFCBEDROCK fractional cover of bedrock using SS_BEDROCK (mean(wtA, wtB, ... wtJ))
SSFCBOULDERS fractional cover of Boulder using SS_BOULDER (mean(wtA, wtB, ... wtJ))
SSFCCOBBLE fractional cover of Cobble using SS_COBBLE (mean(wtA, wtB, ... wtJ))
SSFCGRAVEL fractional cover of gravel using SS_GRAVEL (mean(wtA, wtB, ... wtJ))
SSFCORGANIC fractional cover of organic using SS_ORGANIC (mean(wtA, wtB, ... wtJ))
SSFCOTHER fractional cover of other substrate using SS_OTHER (mean(wtA, wtB, ... wtJ))

SSFCSAND fractional cover of sand using SS_SAND (mean(wtA, wtB, ... wtJ))

SSFCSILT fractional cover of silt using SS_SILT (mean(wtA, wtB, ... wtJ))

SSFCWOOD fractional cover of wood using SS_WOOD (mean(wtA, wtB, ... wtJ))

SSFPBEDROCK fractional presence of bedrock using SS_BEDROCK (mean(atA, atB, ... atJ))

SSFPBOULDERS fractional presence of Boulder using SS_BOULDER (mean(atA, atB, ... atJ))

SSFPCOBBLE fractional presence of Cobble using SS_COBBLE (mean(atA, atB, ... atJ))

SSFPORGANIC fractional presence of organic using SS_ORGANIC (mean(atA, atB, ... atJ))
SSFPOTHER fractional presence of other substrate using SS_OTHER (mean(atA, atB, ... atJ))

SSFPSAND fractional presence of sand using SS_SAND (mean(atA, atB, ... atJ))
SSFPSILT fractional presence of silt using SS_SILT (mean(atA, atB, ... atJ))
SSFPWOOD fractional presence of wood using SS_WOOD (mean(atA, atB, ... atJ))

Number of substrate classes present at a site using SS_BEDROCK, SS_BOULDER, SS_COBBLE, SS_GRAVEL, SS_SAND, SS_SILT, SS_ORGANIC, SS_OTHER, SS_WOOD (count of substrate classes

SSISITEVARIETY noted anywhere in site.)

Mean number of substrate classes present in each station using SS_BEDROCK, SS_BOULDER, SS_COBBLE, SS_GRAVEL, SS_SAND, SS_SILT, SS_ORGANIC, SS_OTHER, SS_WOOD (mean(count of

SSISTAVARIETY substrate classes at each station))

SSNBEDROCK number of stations with bedrock data using SS_BEDROCK (count(atA, atB... atJ))
SSNBOULDERS number of stations with boulder data using SS_BOULDERS (count(atA, atB... atJ))
SSNCOBBLE number of stations with cobble data using SS_COBBLE (count(atA, atB... atJ))
SSNGRAVEL number of stations with gravel data using SS_GRAVEL (count(atA, atB... atJ))
SSNORGANIC number of stations with organic data using SS_ORGANIC (count(atA, atB... atJ))

SSNOTHER number of stations with other substrate data using SS_OTHER (count(atA, atB... atJ))

SSNSAND number of stations with sand data using SS_SAND (count(atA, atB... atJ))

SSNSILT number of stations with silt data using SS_SILT (count(atA, atB... atJ))

SSNWOOD number of stations with wood data using SS_WOOD (count(atA, atB... atJ))

Mode of bottom substrate by cover using ssfcBedrock, ssfcBoulders, ssfcCobble, ssfcGravel, ssfcClass ssfcSand, ssfcSilt (space-delimited list of 1+ classes with sum(bsfcClass)) = max(sum(bsfcClass)))

Mode of bottom substrate by presence using ssfpBedrock, ssfpBoulders, ssfpCobble, ssfpGravel,

SSOPCLASS

SSfpSand, ssfpSilt (space-delimited list of 1+ classes with presence = max(bsfp*))

SSVBEDROCK

SSVBEDROCK

SSVBOULDERS

Std dev. Cover of bedrock using SS_BEDROCK (stdev(wtA, wtB, wtC... wtJ))

SSVCOBBLE

Std dev. Cover of cobble using SS_COBBLE (stdev(wtA, wtB, wtC... wtJ))

SSVGRAVEL

SSVGRAVEL

SSPGRAVEL (stdev(wtA, wtB, wtC... wtJ))

std dev. logged bottom substrate diameter (mineral) using SS_BEDROCK, SS_BOULDER, SS_COBBLE, SS_GRAVEL, SS_SAND, SS_SILT, SS_ORGANIC, SS_OTHER, SS_WOOD (stdev(Dm*Csm), where

SSVLDIA Dm=log10(characteristic diam), Csm=fractional cover of class at a station)

SSVORGANIC std dev. Cover of organic using SS_ORGANIC (stdev(wtA, wtB, wtC... wtJ))

SSVOTHER std dev. Cover of Other substrate using SS_OTHER (stdev(wtA, wtB, wtC... wtJ))

SSVSANDstd dev. Cover of sand using SS_SAND (stdev(wtA, wtB, wtC... wtJ))SSVSILTstd dev. Cover of silt using SS_SILT (stdev(wtA, wtB, wtC... wtJ))SSVWOODstd dev. Cover of wood using SS_WOOD (stdev(wtA, wtB, wtC... wtJ))

mean logged bottom substrate diameter (mineral) using SS_BEDROCK, SS_BOULDER, SS_COBBLE, SS_GRAVEL, SS_SAND, SS_SILT, SS_ORGANIC, SS_OTHER, SS_WOOD (mean(Dm*Csm), where

SSXLDIA Dm=log10(characteristic diam), Csm=fractional cover of class at a station)

VERTDD Vertical drawdown distance