

# DamData.txt

This file contains dam properties for **outlet lakes** that operate as reservoirs (i.e. dams) and which do not use general parameters (so the term lake below refers to those lakes that are reservoirs/dams). Properties defined here override the properties and generic parameters given in [GeoData.txt](#) and [par.txt](#). Lake depth from [GeoData.txt](#) may also be kept by using -9999 for the value in *DamData.txt*. Dams defined in *DamData.txt* can not be included in [LakeData.txt](#) (with the exception of a [LakeData.txt](#) with only nutrient model parameters). Dam properties include physical characteristics, e.g. depth, and regulation routine parameters. In *DamData.txt*, four different dam types with different purposes may be used. These are irrigation dam, water supply dam, flood control dam and hydropower dam. Each type has its own rules for regulation. Hydropower dams are regulated similar to the routines in [LakeData.txt](#), but not totally.

*DamData.txt* can only be used for standard lakes (ldtype 1, see ldtype definition in [LakeData.txt](#)), no lakebasins are allowed.

*DamData.txt* is a tab-separated file located in the [modeldir](#) folder. Lakes are listed row-wise. The first row contains a column header with variable names. Variable names are not case-sensitive (max. 10 characters, no spaces). Columns with headings unknown to HYPE are skipped while reading the file. Columns containing character strings, e.g. descriptive meta-data, must not exceed a length of 100 characters. The columns may be in any order. A value must exist for every column and row, i.e. empty cells are not allowed, with the exception of column lake\_depth, see first paragraph. Maximum 50 columns allowed.

Example snippet of a *DamData.txt* file structure:

PURPOSE	SUBID	LAKE_DEPTH	REGVOL	RATE	EXP	W0REF	SNOWFRAC	QINFJAN	QINFJAN	QINFJAN
QINFJAN	...									
4	25	16.7	189	100	1.5	104	0.27	18.8	16.3	
16.5	...									
4	34	55.7	85	75	1.5	0	0.61	5.3	5.1	4.1
...										
...	...	...	...	...	...	...	...	...	...	...
...										

The table below describes all *DamData.txt* columns read by HYPE.

Variable ID	Unit	Purpose	Description
subid	-	all	subbasin ID (integer), used to connect lake basins to lakes (mandatory)
purpose	-	all	the main purpose of the reservoir, 1= irrigation, 2=water supply, 3=flood control, 4=hydropower (mandatory)
lake_depth	m	all	water depth below threshold for outlet lake (mean depth), can also be defined in <a href="#">GeoData.txt</a> (must be > 0)
w0ref	m	all	reference water level to be added to simulated water level before print out, for lake outflow threshold
qprod1	m <sup>3</sup> /s	1/2/4	parameter for regulated lake, constant production flow down to lowest allowed waterstage for regulation period 1

Variable ID	Unit	Purpose	Description
qprod2	$m^3/s$	1/2/4	parameter for regulated olake, constant production flow down to lowest allowed waterstage for regulation period 2
datum1	-	1/2/4	parameter for regulated olake, start of regulation period 1 (if not defined only one period is used) (4 character month-day string <i>mmdd</i> )
datum2	-	1/2/4	parameter for regulated olake, start of regulation period 2 (4 character month-day string <i>mmdd</i> )
qamp	-	4	parameter for regulated olake, seasonally varying flow in regulated volume. Variation defined in form of a sinus wave with this amplitude (as fraction of current qprod), where the minimum of the sinus wave occurs for day number qpha
qpha	-	4	parameter for regulated olake, seasonally varying flow below the threshold. Default is qpha = 102.
snowfrac	-	4	fraction of the precipitation in the dam's catchment that falls as snow (can be taken from a model run with this as output), used to give default seasonal varying production flow for high latitude dams (for snowfrac>0.35: qamp=0.71, qpha must be set)
rate	-	all	parameter for specific rating curve of unregulated lakes or for spillway flow of regulated olakes above threshold ( $w_0ref$ ), equation $q = rate (w - w_0)^{exp}$
exp	-	all	parameter for specific rating curve or for spillway flow of regulated olake above threshold ( $w_0ref$ ), equation $q = rate (w - w_0)^{exp}$
regvol	$10^6 m^3$	all	regulation volume for general regulation routine. Determines lowest water stage for production flow. (must be less than lake depth * lake area) (suggest 85% of dam volume if data can't be found)
wamp	$m$	all	regulation amplitude. Usually larger than water depth given by regvol. Used for scaling computed water stage variation (below threshold) similar to variation of observations. Set to -9999 for not to use.
qinfjan	$m^3/s$	all	mean January inflow to reservoir (can be taken from a model run without reservoirs for example)
qinf feb	$m^3/s$	all	mean February inflow to reservoir (can be taken from a model run without reservoirs for example)
qinfmar	$m^3/s$	all	mean March inflow to reservoir (can be taken from a model run without reservoirs for example)
qinfapr	$m^3/s$	all	mean April inflow to reservoir (can be taken from a model run without reservoirs for example)
qinfmay	$m^3/s$	all	mean May inflow to reservoir (can be taken from a model run without reservoirs for example)
qinfjun	$m^3/s$	all	mean June inflow to reservoir (can be taken from a model run without reservoirs for example)
qinfjul	$m^3/s$	all	mean July inflow to reservoir (can be taken from a model run without reservoirs for example)
qinfaug	$m^3/s$	all	mean August inflow to reservoir (can be taken from a model run without reservoirs for example)
qinfsep	$m^3/s$	all	mean September inflow to reservoir (can be taken from a model run without reservoirs for example)
qinfoct	$m^3/s$	all	mean October inflow to reservoir (can be taken from a model run without reservoirs for example)
qinfnov	$m^3/s$	all	mean November inflow to reservoir (can be taken from a model run without reservoirs for example)

Variable ID	Unit	Purpose	Description
qinfdec	$m^3/s$	<i>all</i>	mean December inflow to reservoir (can be taken from a model run without reservoirs for example)