

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](#). 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 lake (ldtype=1 as defined for [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, but must not longer than ten characters. Columns containing character strings, e.g. descriptive meta-data, must not exceed a length of 50 characters. The columns may be in any order. A value must exist for every column and row, i.e. empty cells are not allowed. Maximum 50 columns allowed.

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

FORTSÄTT HÄR!!!!!! Snippet is still *LakeData.txt*

LAKEDATAID	LAKEID	LDTYPE	LAKE_DEPTH	AREA	WOREF	QPROD1	DATUM1	REGVOL	REGAMP
RATE	EXP	...							
40	2	...	1	0	1	3.6	5000	7.67	0
155	0.3	...	0	1	2	7.2	34000	21.94	13.5
0	0	...	2	1	3	6.9	4000	0	0
0	0	...	3	1	4	5	30000	0	0
...

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

Variable ID	Unit	Type	LdType	Description
lakedataid	-	general	1/3/4	lake/lake basin ID (integer), used to connect lakes/lake basins to subbasins in GeoData.txt (mandatory)
lakeid	-	general	2/3/4	lake ID (integer), used to connect lake basins to multi-basin lakes. Unique integer, 0 for simple outlet lakes (ldtype = 1)

Variable ID	Unit	Type	LdType	Description
ldtype	-	general	all	code for lake data type (<i>LdType</i>), integer between 1 and 4 (mandatory): 1 - simple outlet lake 2 - multi-basin lake, i.e. covering several HYPE sub-basins, generic lake/outflow properties 3 - upstream lake basin of a multi-basin lake 4 - last/outlet lake basin of a multi-basin lake
lake_depth	m	physical property	all	water depth below threshold for outlet lake (mean depth), can also be defined in GeoData.txt (must be > 0)
area	m ²	physical property	all	lake or lake basin area, used for multi-basin lakes and to check which fraction of the sub-basin is covered by the outlet lake for simple outlet lakes (compared with SLC class fraction in GeoData.txt), mandatory for ldtype = 2
w0ref	m	general	1/3/4	reference water level to be added to simulated water level before print out, for lake outflow threshold
deltaw0	m	regulation	1/3/4	difference in lake threshold for regulation with two rating curves (m). Determines the lake threshold for regulation period 2 (w0=w0ref + deltaw0), see qprod1 and qprod2
qprod1	m ³ /s	regulation	1/3/4	parameter for regulated olake, constant production flow down to lowest allowed waterstage for regulation period 1
qprod2	m ³ /s	regulation	1/3/4	parameter for regulated olake, constant production flow down to lowest allowed waterstage for regulation period 2
datum1	-	regulation	1/3/4	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	-	regulation	1/3/4	parameter for regulated olake, start of regulation period 2 (4 character month-day string <i>mmdd</i>)
qamp	-	regulation	1/3/4	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	-	regulation	1/3/4	parameter for regulated olake, seasonally varying flow below the threshold. day number for the minimum of the sinus wave. Default is qpha = 102.
rate	m ² /time step	regulation	1/3/4	parameter for specific rating curve of unregulated lakes or for spillway flow of regulated olakes above threshold (w0ref), equation $q = \text{rate} (w - w0)^{\text{exp}}$
exp	-	regulation	1/3/4	parameter for specific rating curve or for spillway flow of regulated olake above threshold (w0ref), equation $q = \text{rate} (w - w0)^{\text{exp}}$
regvol	10 ⁶ m ³	regulation	1/3/4	regulation volume for general regulation routine. Determines lowest water stage for production flow. (must be less than lake depth * lake area)
prodpp	m/d	nutrient cycling	1/2	parameter for internal load of Part-P

Variable ID	Unit	Type	LdType	Description
prodsp	m/d	<i>nutrient cycling</i>	1/2	parameter for internal load of SRP (m/d)
Qmean	mm/y	<i>physical property</i>	1/2	initial value for calculation of mean flow, can also be defined in par.txt
tpmean	mg/l	<i>nutrient cycling</i>	1/2	mean concentration of total P, used for production if P is not simulated. Also used as initial value of particulate P concentration in lakes. Can also be defined in par.txt
tnmean	mg/l	<i>nutrient cycling</i>	1/2	mean concentration of total N (mg/l), used as initial value N concentration in lakes. Can also be defined in par.txt
tocmean	mg/l	<i>nutrient cycling</i>	1/2	mean concentration of TOC (mg/l), used as initial value of TOC concentration in lakes. Can also be defined in par.txt
limqprod	-	<i>regulation</i>	1/2	parameter for water level below which there is reduced production flow from a dam (fraction of regulating volume), the flow reduction is linear to wmin. Can also be defined in par.txt
sedon	m/d	<i>nutrient cycling</i>	1/2	sedimentation rate for ON in lakes. Can also be defined in par.txt
sedpp	m/d	<i>nutrient cycling</i>	1/2	sedimentation rate for PP in lakes. Can also be defined in par.txt
sedoc	m/d	<i>nutrient cycling</i>	1/2	sedimentation rate for OC in lakes. Can also be defined in par.txt
wprodn	kg/(m ³ d)	<i>nutrient cycling</i>	1/2	production/degradation in water for N. Can also be defined in par.txt
wprodp	kg/(m ³ d)	<i>nutrient cycling</i>	1/2	production/degradation in water for P. Can also be defined in par.txt
wprodc	kg/(m ³ d)	<i>nutrient cycling</i>	1/2	production/degradation in water for C. Can also be defined in par.txt .
denitwl	kg/(m ² d)	<i>nutrient cycling</i>	1/2	parameter for denitrification in lakes. Can also be defined in par.txt
deeplake	-	<i>physical property</i>	1/2	fraction of the lake's initial volume which is considered as slow (SLP), between 0 and 1. 0 means that the lake is not divided into a slow and a fast part. Can also be defined in par.txt
fastlake	-	<i>physical property</i>	1/2	fraction of lake outflow that comes from the fast lake part (FLP), between 0 and 1. Can also be defined in par.txt