DECISION MAKING ON TURBINE TYPES AND CAPACITIES FOR RUN-OF-RIVER HYDROELECTRIC POWER PLANTS A CASE STUDY ON EGLENCE-1 HEPP

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by
Aktan TEMİZ

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İZMİR

We approve the thesis of **Aktan TEMİZ**

Examining Committee Members:

Assist. Prof. Dr. Ünver ÖZKOL
Department of Mechanical Engineering
Izmir Institute of Technology

Assoc. Prof. Dr. Şebnem ELÇİ
Department of Civil Engineering
Izmir Institute of Technology

Prof. Dr. Gülden GÖKÇEN
Department of Mechanical Engineering
Izmir Institute of Technology

25 June 2013

Assist. Prof. Dr. Ünver ÖZKOL
Supervisor, Department of Mechanical Engineering
Izmir Institute of Technology

Prof. Dr. Gülden GÖKÇEN
Head of the Department of
Energy Engineering

Prof. Dr. R. Tuğrul SENGER
Dean of the Graduate School of
Engineering and Sciences

ABSTRACT

DECISION MAKING ON TURBINE TYPES AND CAPACITIES FOR RUN-OF-RIVER HYDROELECTRIC POWER PLANTS A CASE STUDY ON EGLENCE-1 HEPP

Aim of this thesis is to overview a methodology for selecting the best fit turbine type which is one of the most important part of run-of-river hydroelectric power plants and to apply this methodology on a case study of Eglence-1 HEPP. Basically, in a Hydopower Plant, Hydro-turbines convert water pressure and its kinetic energy into mechanical shaft power which can be used to drive generators for electrical energy production. There are different turbine types which operates at different rated flows and net heads. The type, geometry and dimensions of a turbine are selected by net head, range of discharges through the turbine, rotational speed, cavitation problems and cost.

One of the main disadvantages of run-of-river HEPP is that they have not enough reservoir, but there is a considerable storage capacity in our case scenario. So, by the help of this reservoir, only Francis turbine alternatives have been studied for Eglence-I HEPP. If there would not exist such a reservoir then we had to choose at least one small Pelton type turbine which is more suitable for the flow variations are large and stay in the lower range of design flow.

At the last part of thesis, the cost and benefit estimations for a techno-economic evaluation of Eglence-1 HEPP has been discussed to show that this investment earns enough money during its lifetime.

All hydroelectric power plants can be considered as tailor-made for each unique application and different alternatives for unique plant can be recommended for various operating conditions.

ÖZET

NEHİR TİPİ HİDROELEKTRİK GÜÇ SANTRALLERİNDE TÜRBİN TİPİ VE KAPASİTESİNE KARAR VERME SÜRECİNİN İNCELENMESİ - EGLENCE-1 HES ÖRNEK ÇALIŞMASI

Bu tezin amacı, nehir tipi hidroelektrik santrallerde türbin tipi ve kapasitesine karar verme sürecinin incelenmesi ve bu sürecin Eglence-1 HES örnek çalışmasında uygulanmasıdır. Temel olarak bir Hidroelektrik Santralde, Türbinler suyun basıncı ve kinetik enerjisini mekanik güce çevirir, Generatörler de bu mekanik gücü kullanarak elektrik enerji üretimi sağlarlar. Farklı düşü ve debi değerleri ile çalışan değişik türbin tipleri bulunmakta ve tesislerde kullanılacak türbinlerin tip ve kapasiteleri belirlenirken de net düşü, türbinlenecek su miktarı, dönme hızı, kavitasyon problemleri, maliyet gibi parametreler dikkate alınmaktadır.

Nehir tipi hidroelektrik santrallerinin en önemli dezavantajlarından biri su depolama şanslarının olmamasına karşın bizim örnek çalışmamızda hatırı sayılır bir su tutma kapasitesi bulunmaktadır. Bu olanak sayesinde, Eglence-1 HES uygulamasında sadece Francis tipi türbin seçenekleri üzerinde çalışılmıştır. Eğer bu su depolama şansı olmasaydı, değişken debilerde ve tasarım debisinden düşük akımlarda çalışmaya daha uygun olan Pelton tipi bir türbin seçeneği de değerlendirilmeliydi.

Tezin son bölümünde, Eglence-1 HES projesinin maliyet ve fayda tahminleri üzerinde çalışılarak bu yatırımın üretim hayatı boyunca para kazandıracak bir yatırım olduğu gösterilmiştir.

Her hidroelektrik santral kendine özgü bir terzi işi olarak değerlendirilmektedir, bu nedenle, her özgün uygulama için değişik çalışma koşulları dikkate alınarak, değişik çözüm önerileri sunulabilmektedir.

to my daughter Aslı Temiz

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LIST OF NOMENCLATURE

C_n	total cost of the installation (€)
CF	capacity factor of the installation (%)
d	diameter of the penstock used (m)
E	specific hydraulic energy of machine (J/kg)
E_g	electricity generation by the proposed hydropower station (kWh)
FC	fixed maintenance and operation cost of the hydropower station (€)
f	first installation cost coefficient (%)
$f(Q)$	probability density function describing the available water potential (%)
g	gravitational acceleration (m/s^2)
g_m	maintenance and operation cost annual inflation rate (%)
H_{net}	total (net) head of the hydro turbines used (m)
h	hydrostatic head of the installation (m)
IC_o	hydropower station turnkey cost (€)
IRR	internal rate of return of the installation (%)
i	return on investment index or interest rate (%)
L	length of the penstock used (m)
m	fixed maintenance and operation cost coefficient (%)
P_m	mechanical power output of the turbine (kW)
P_e	electrical power output of the hydropower station (kW)
P_o	rated power of the hydro-turbines used (kW)
NPV	net present value of the investment
n	service period of the installation (years)
Pr	reduced ex-works price of the installation (€/kW)
Q	volume flow rate of the hydro turbine (m^3/s)
VC	variable maintenance and operation cost of the hydropower station (€)
z	number of turbines used
γ	state subsidization percentage (%)
Δ	mean technical availability factor of a small hydro power station (%)
δH_f	total hydraulic loss of the system (m)
ζ	local loss coefficient for the water circuit of the hydropower station
η_t	total hydraulic efficiency of the turbine (%)

η total efficiency of the hydropower plant (%)

λ friction loss coefficient for the water circuit of the hydropower station

ξ specific cost coefficient of civil engineering works (%)

ρ water density (kg/m^3)

ω mean power coefficient of the installation (%)

CHAPTER 1

INTRODUCTION

Hydropower, large or small, remains the most important of the renewable resources for electrical power generation both worldwide and Turkey [1]. The primary Energy consumptions in the World and in Turkey are 12.274,6 Million Tonnes Oil Equivalent (MTOE)[1] and 118,8 MTOE respectively, of these 791,5 MTOE of the World (6,4%) and 11,8 MTOE of Turkey (10,0%) were generated by hydropower in year 2011. The primary Energy consumtions in the World and in Turkey due to resources can be found in Table 1.1 [2].

Table 1.1.The primary Energy consumtions in the World and in Turkey due to resources in MTOE (Source: BP Statistical Review of World Energy, June 2012)

RESOURCES	WORLD (MTOE)	TURKEY (MTOE)
Oil	4.059,1 (33,0%)	32,0 (26,9%)
Natural Gas	2.905,6 (23,7%)	41,2 (34,7%)
Coal	3.724,3 (30,4%)	32,4 (27,3%)
Nuclear Energy	599,3 (4,9%)	-
Hydroelectricity	791,5 (6,4%)	11,8 (10,0%)
Renewables	194,8 (1,6%)	1,3 (1,1%)
TOTAL	12.274,6 (100%)	118,8 (100%)

Turkey does not have enough primary energy resources such as oil and natural gas, but has a valuable hydropower potential. Turkey is the second richest country in Europe after Norway for its gross hydroelectric potential which is 440 TWh/year. Technically useable potential is 215 TWh/year, and economic potential is 126 TWh/year according to DSI's estimations [3].

Turkey's national energy resources consist mainly of hydraulic (126 TWh/year), lignite (105 TWh/year) and hard coal (16 TWh/year) resources, with a total annual average of 248 TWh. Approximately, 126 TWh of hydropower potential corresponds to 35.000MW of generation capacity [4].

[1] The International Energy Agency (IEA) and Organisation for Economic Co-operation and Development (OECD) define one tonne of oil equivalent (toe) to be equal to 41,868 GJ or 11,63 MWh.

The installed power capacity and annual energy production of Turkey due to resources, in year 2011, is given in Table 1.2 [5].

Table 1.2. The installed power capacity and Energy production of Turkey (2011) [5]

RESOURCES	Installed Capacity (MW)	Capacity Portion (%)	Annual Energy Production (kWh)	Contri-bution (%)
Fuel Oil, Asfaltit, Nafta, Diesel	1.362,3	2,6	1.720.475.136	0,7
Imported Coal, Coal, Lignite	12.355,7	23,4	65.400.998.764	28,0
Natural Gas, LNG	16.004,9	30,2	104.047.618.442	44,5
Renewable, Waste	115,4	0,2	469.215.027	0,2
Multi fuels Solid, Liquid	556,5	1,1	0	0,0
Multi fuels Liquid, Natural Gas	3.536,4	6,7	0	0,0
Geothermal	114,2	0,2	694.350.295	0,3
Hydropower (Dam Type)	13.529,3	25,6	42.315.496.717	18,1
Hydropower (Run-of-river)	3.607,7	6,8	10.023.105.454	4,3
Wind power	1.728,7	3,3	4.723.873.039	2,0
TOTAL	52.911,1	100,0	229.395.132.875	98,1

The supply and demand balance of energy is very critical issue for the stability of the power network and therefore, the Energy Regulatory Authorities forecast the energy demand which is greatly important job to manage for a reliable energy supply program. Therefore the peak and base energy demand projectios of low scenario and of high scenario are prepared for ten years, by TEİAŞ, as seen in Table 1.3. This forecast table shows that a 70% to 85% of increase for peak demand and a 75% to 90% increase for energy demand are expected in ten years. Therefore, Energy Market Regulatory Authority (EMRA) has to plan new power plant investments to support these demands.

Table 1.3. Peak and Energy Demand forecast of Turkey for High and Low Scenario [6]

YEAR	High Scenario				Low Scenario			
	Peak Demand (MW)	Rate of incr (%)	Energy Demand (GWh)	Rate of incr (%)	Peak Demand (MW)	Rate of incr (%)	Energy Demand (GWh)	Rate of incr (%)
2011	36.000	7,81	227.000	7,87	36.000	7,81	227.000	7,87
2012	38.400	6,67	243.430	7,24	38.000	5,56	241.130	6,22
2013	41.000	6,77	262.010	7,63	40.130	5,61	257.060	6,61
2014	43.800	6,83	281.850	7,57	42.360	5,56	273.900	6,55
2015	46.800	6,85	303.140	7,55	44.955	6,13	291.790	6,53
2015	50.210	7,29	325.920	7,51	47.870	6,48	310.730	6,49
2017	53.965	7,48	350.300	7,48	50.965	6,47	330.800	6,46
2018	57.980	7,44	376.350	7,44	54.230	6,41	352.010	6,41
2019	62.265	7,39	404.160	7,39	57.685	6,37	374.430	6,37
2020	66.845	7,36	433.900	7,36	61.340	6,34	398.160	6,34

Hydropower is one of the important supply resources to support above demands. Hydropower potential of Turkey is given in Table 1.4 with DSI's current approach [7]. This table covers both dam type and run-of-river hydropower plants together. In future, DSI aims 47,5 GW installed power capacity with 164 TWh annual energy production with Hydroelectric Power Plants in Turkey.

Table 1.4. Hydropower potential of Turkey [7]

POTENTIAL	Number of HEPP	Installed Capacity (MW)	Annual Energy Production (KWh)	Production Portion (%)
In operation	303	17.372	62.000.000.000	38
Under construction	256	10.590	35.000.000.000	21
Planned to construct	1.084	19.535	67.000.000.000	41
TOTAL	1.643	47.497	164.000.000.000	100

In this thesis, a run-of-river hydropower, with no dam or water storage, which is one of the most cost effective and environment friendly technologies has been studied.

Basically, in a Hydopower Plant, Hydro-turbines convert water pressure and its kinetic energy into mechanical shaft power which can be used to drive generators for electrical energy production. The power produced is proportional to the product of *pressure head* and *volume flow rate*. The general formula for any hydro system's power output is :

$$P_m = \eta_t \rho g Q H \tag{1.1}$$

where P_m is the mechanical power output at the turbine shaft (Watts), η_t is the total hydraulic efficiency of the turbine, ρ is the density of water (kg/m^3), g is the gravitational acceleration (m/s^2), Q is the volume flow rate passing through the turbine (m^3/s) and H is the effective net pressure head of water across the turbine (m).

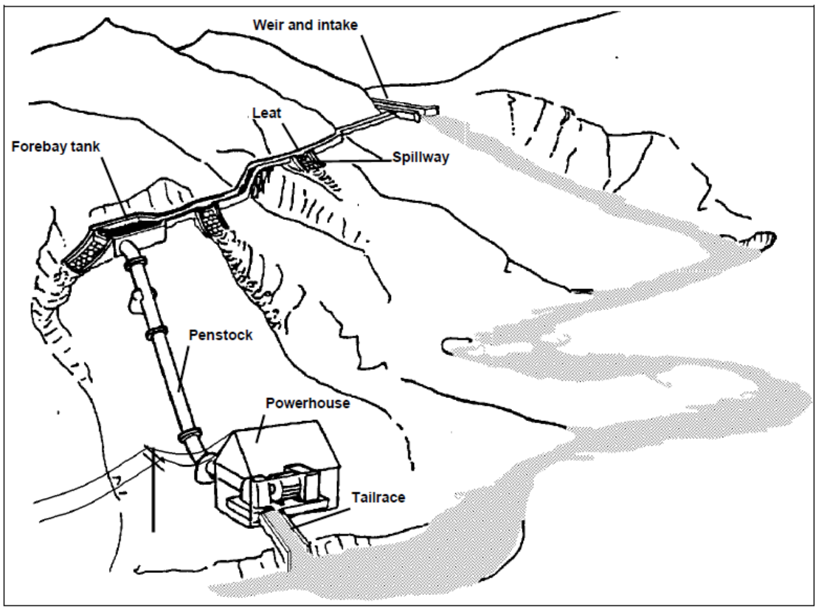


Figure 1.1. Typical run-of-river hydropower site layout [1]

Figure 1.1 illustrates the main parts of run-of-river hydropower site layout. Water is diverted from the river through an intake at a weir. The weir is a barrier across the river which maintains a continuous flow through the intake. Water passes through a settling tank or forebay in which the water is slowed down sufficiently for suspended particles to settle out, before reaching to the turbine. The forebay is usually protected by a trash rack which filters out water-borne debris which might damage the turbine such as stones, timber, or man-made garbage. A pressure pipe, known as a penstock, conveys the water from the forebay to the turbine. All installations need to have a valve or sluice gate at the top of the penstock which can be closed when the turbine needs to be shutdown and emptied of water for maintenance. Water is diverted back to the river down a spillway when this valve is closed [1].

Aim of this thesis is to develop a methodology for selecting the best fit turbine type which is one of the most important part of run-of-river hydroelectric power plants. There are different turbine types which operates at different rated flows and net heads, can be classified as reaction turbines and impulse turbines.

Reaction turbines work by the water pressure force on the face of the runner blades, which decreases as it proceeds through the turbine. Some of the common examples are Francis, Kaplan and Propeller type turbines. A typical Francis type turbine and generator layout can be seen in Figure 1.2.

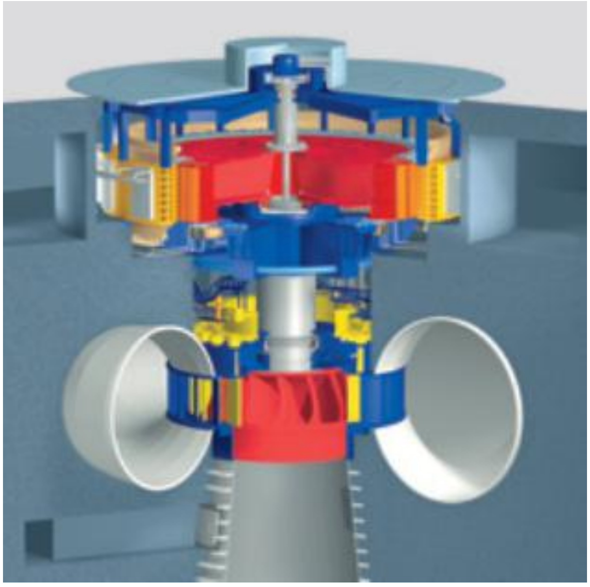


Figure 1.2. Francis Turbine [8]

Differently from reaction turbines, water pressure is converted into kinetic energy before entering the runner of impulse turbine. The kinetic energy is in the form of a high-speed jet that strikes a bucket mounted on the periphery of the runner. Some common examples of it are Pelton, Turgo and Cross-flow turbines. A typical Pelton turbine layout is given in Figure 1.3.

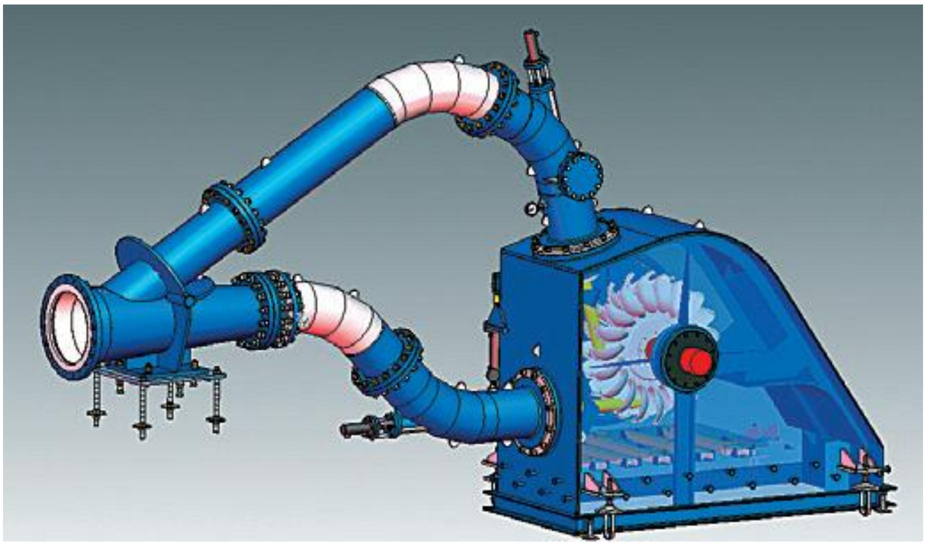


Figure 1.3. Pelton Turbine [9]

Turbine installation schemes are generally classified according to the Head Coefficient, such as High Head (100 m and above), Medium Head (30 – 100 m) and Low Head (2 - 30 m). In our case[2], Net Head (H_{net}) is 276,23 m and design volume flow rate (Q) is 17,4 m^3/s. Therefore, different alternatives of Francis and Pelton type turbines have been investigated for this High Head Scheme.

[2] Our case scenario will be described and discussed in Chapter 4. It is abbreviated as EGLENCE-1 HEPP which stands for the first Hydroelectric Power Plant of Eglence creek of Adana.

CHAPTER 2

TURBINE TYPE SELECTION CRITERIA

The type, geometry and dimensions of a turbine are selected/designed by the following parameters :

- Net Head, H_{net}
- Range of discharges through the turbine
- Rotational speed
- Cavitation problems
- Cost

The preliminary design and choice of a turbine are both an iterative processes which requires to evaluate size, cost and efficiency issues. Definitions of these parameters are shortly given below.

2.1. Net Head

The gross head is the vertical distance between the upstream water surface level at the intake and the downstream water level for reaction turbines or the nozzle axis level for impulse turbines. There is a head loss because of friction losses in the penstock, spiral casing, guide vanes and runner blades plus remaining kinetic energy in the draft-tube. The net head (H_{net}), which is calculated after reducing these losses, can also be defined as the ratio of the specific hydraulic energy (E) of machine by the acceleration due to gravity (g).

$$H_{net} = \frac{E}{g} \text{ [m]} \qquad (2.1)$$

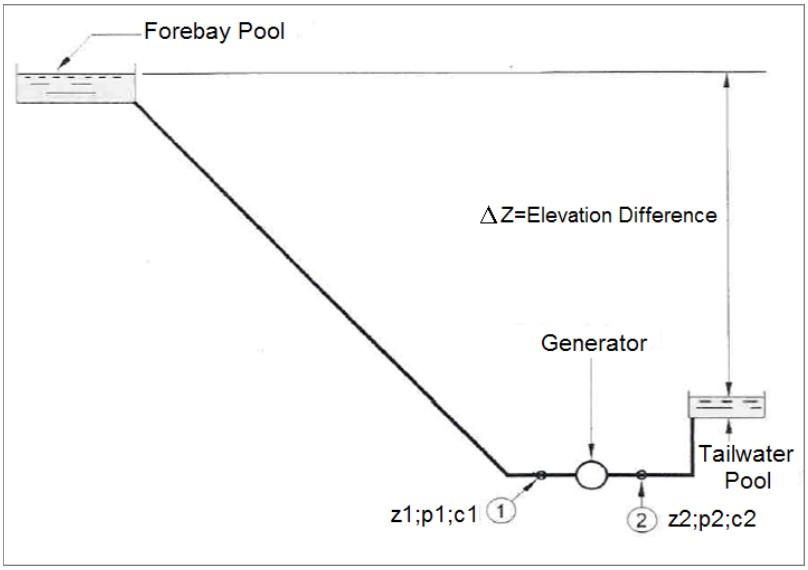


Figure 2.1. Schematic view and measurement sections of a hydropower scheme

The specific hydraulic energy (E) of machine in Figure 2.1, is defined as:

$$E = \frac{1}{\rho}(p_1 - p_2) + \frac{1}{2}(v_1^2 - v_2^2) + g\,(z_1 - z_2)\ \text{[J/kg]} \qquad (2.2)$$

where,

p_x : pressure in section x [Pa],

v_x : water velocity in section x [m/s],

z_x : water elevation of the section x [m],

ρ : water specific density [kg/m^3],

g : gravitational acceleration [m/s^2].

The subscripts 1 and 2 define the upstream and downstream measurement section of the turbine respectively.

The first criterion to take into account in the turbine's selection is the net head. The range of operating heads for each type of turbine can be found in Table 2.1.

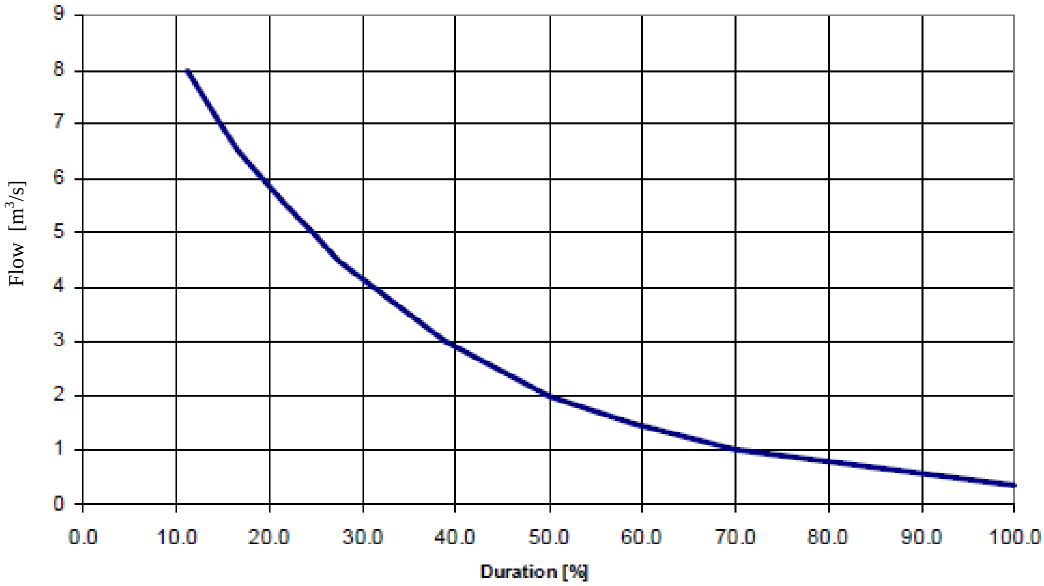
Table 2.1. Range of Turbine Heads

Turbine Type	Head range [m]
Kaplan and Propeller	$2 < H_{net} < 40$
Francis	$25 < H_{net} < 350$
Pelton	$50 < H_{net} < 1300$
Crossflow	$5 < H_{net} < 200$
Turgo	$50 < H_{net} < 250$

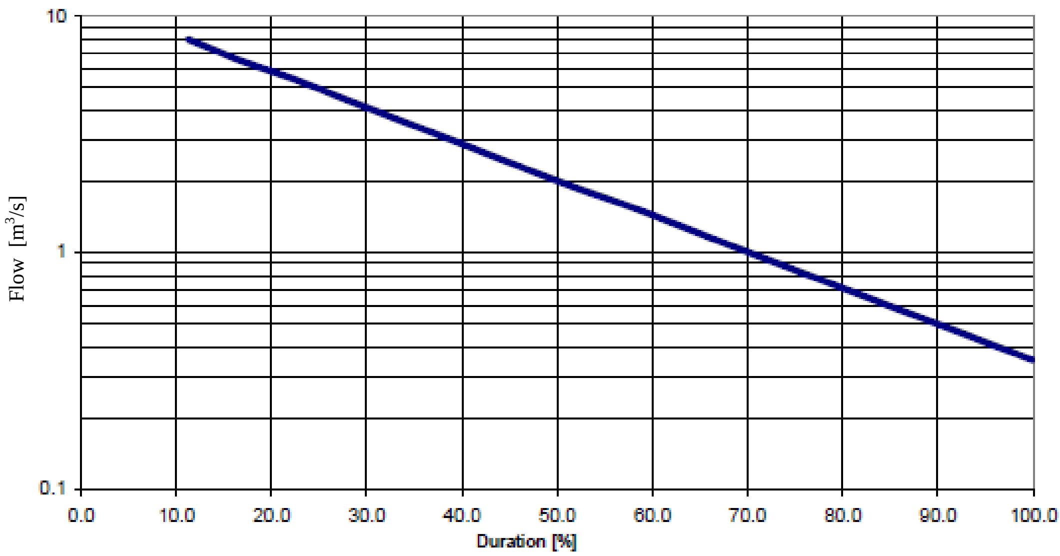
This table shows some overlapping, as for a certain given head, several types of turbines can be used. In our case, EGLENCE-1 HEPP, Net Head (H_{net}) is 276,23 m which is in range of both Francis and Pelton turbines and therefore, both of them should be carefully studied.

2.2. Discharge

A single value of the flow has no significance in designing a hydroelectric power plant due to fact that flow rate fluctuates considerably in a year, even in a single season. If these fluctuations would not considered in the design process, that plant will only efficiently work for a short period of time, and result in a largely uneconomical investment. Therefore, it is mandatory to know the flow regime, commonly represented by the Flow Duration Curve (FDC) of 12 months. An FDC is a statistical data obtained by long term time averages, and shows the proportion of time during which the discharge equals or exceeds certain values for a particular point on the river. Figure 2.2 shows a typical FDC in two different scaling. It is clear that y-log scaling gives a linear correlation of this parameter which indicates that FDC can be modelled as FDC=A.log(duration)+B. These two particular FDC, which are taken from European Small Hydropower Association, are given as example [10].



a. Example of a FDC in regular scale



b. Example of FDC in a y-log scale

Figure 2.2. A typical example of a FDC represented in different scales [10]

The FDC is helpful for selecting the right design discharge flow of a turbine by considering the reserved flow of a power plant and the minimum technical turbine flow which are given in Figure 2.3. A vertical shaded area in this figure shows useful flow rates which can be used for energy production in the scheme. The design flow can be identified through an optimisation process which is executed by studying a range of different flows. In general, a design flow can be defined as a flow which is significantly larger than the difference between the mean annual flow and the reserved flow. A suitable type of turbine can only be identified after the design flow of a scheme is defined and its net head is estimated.

The turbine can not operate or has a very low efficency with a lower discharge which is known as a minimum technical flow. Turbine's efficiency is a function of the operating discharge and net head together. Therefore, the minimum technical flows of Francis and Pelton turbines, which are given as 40%-50% and 10% of their design flows respecively, have to be considered for decision making. In our case scenerio the design flow of a power plant has been defined as 17,4 m^3/s by engineering company. We will use the above data to decide suitable turbine types and quantities. A design flow, 17,4 m^3/s, can be shared by two or three turbines for long term continuous operation. This procedure will be discussed in Chapter 4.

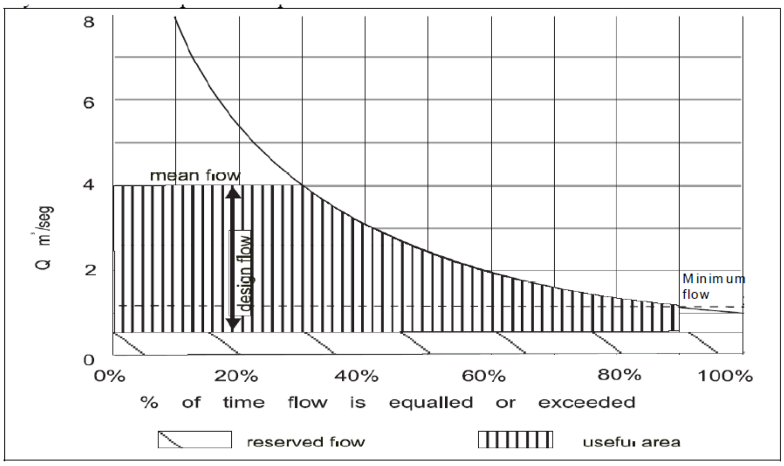


Figure 2.3. Example of residual (reserved) flow [10]

Uncontrolled removal of water from a river can cause some serious impact on aquatic life or on power output of plant. Therefore the reserved or residual flow should be evaluated carefully to avoid the watercourse being almost dry, since a flow which is too small causes damages to acuatic life in the river. On the other hand, an unnecessarily large residual flow effects the energy production negatively, thus reducing the benefits of the investment.

The set of turbine types can be determined for a specific site and a flow environment by the help of design flow and net head. Suitable turbines are those for which the given design flow and net head plot stays within the given operational envelopes. The envelopes vary from manufacturer to manufacturer due to minor design differences and they may result in considerable variations. A typical operational turbine range map is given in Figure 2.4 in which some overlapping regions also exist. Selection of a turbine in this overlapping regions must be done with extra care in order to achieve an optimum energy production output.

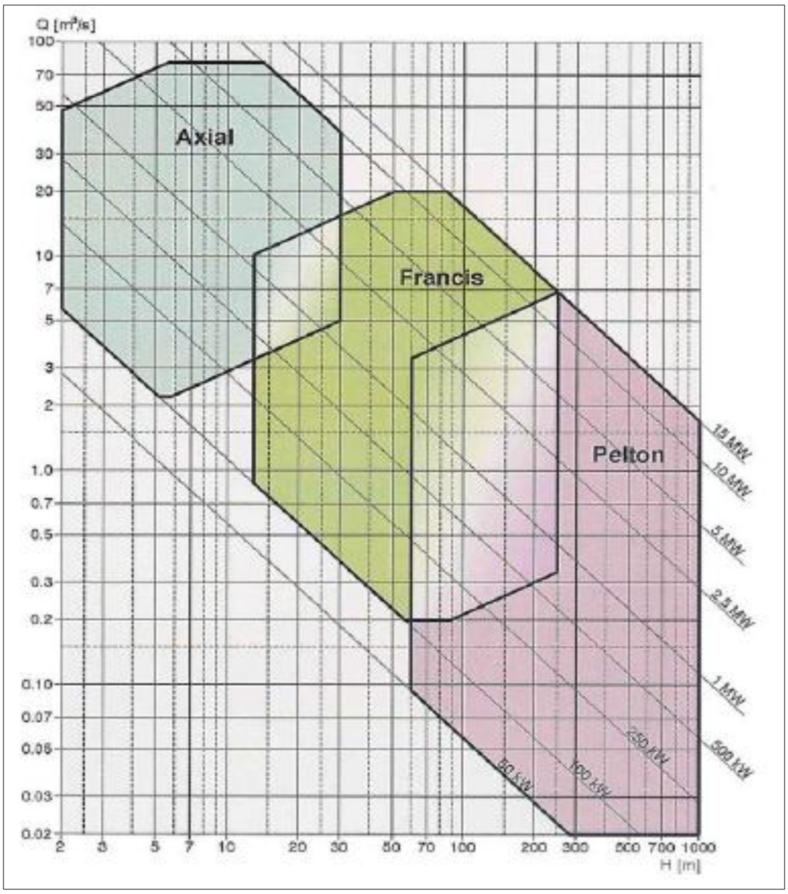


Figure 2.4. Turbines' type field of application [10]

If more than one of these turbines are appropriate for the job, than it will be necessary to compute installed power and electricity output against cost before making decision. Since a turbine can only accept discharges between the practical minimum and the maximum discharge values, it will be adventageous to install two or more smaller turbines instead of one large turbine so that the entire FDC can be covered. The turbines can be sequentially started and each turbine can be operated at its nominal discharge value so that the plant works at its highest efficiency entire year. Smaller turbines usually have slightly smaller efficency than a larger one. Neverthless, this small amount of difference in turbine efficiencies can easily be compansated with large gains of being operational entire year. Moreover, using two or three smaller turbines result in a lower unit weight and volume which will facilitate easy transport and assemly on the site and therefore, much lower installation costs.

The examined problem on decision making for turbine types and capacities has been solved in considering together with economic issues and some additional objectives such as maximization of the produced energy and the best usage of the water stream potential. Anagnostopoulos and Papantonis [11] worked numerically on a similar problem and optimized the size ratio of two turbines in terms of design flow for different turbine size in a small hydropower plant. They concluded that the size ratio of the turbines due to discharge flows that produces the best results is always in the range of 0,4-0,5. The use of different size turbines improves the capability of the plant to respond more efficiently to seasonal flow rate variations.

In case of strong variations in the range of medium head, a multijet Pelton with a low rotational speed will be preferred to a Francis turbine, due to the fact that it has relative high efficieny at lower flow rates. Flow and head variation acceptances is given in Table 2.2 for choosing the turbine type. The final choice between one or more units or between one type of turbine or another will be the result of an iterative calculations by taking the investment costs and the yearly energy production into the account.

Table 2.2. Flow and head variation acceptance

Turbine Type	Acceptance of flow variations	Acceptance of head variations
Pelton	High	Low
Francis	Medium	Low
Kaplan double regulated	High	High
Kaplan single regulated	High	Medium
Propeller	Low	Low

2.3. Specific Speed

The specific speed constitutes a reliable criterion for the selection of a turbine. It is more precise than the conventional enveloping curves mentioned in Figure 2.4. In most general terms, specific speed of a turbine is the rotational speed of a similar turbine with a unit net head at a maximum efficiency and producing a unit power. Therefore this definition makes it a non-dimensional parameter which is independent of size and the type of fluid. Scientifically it is given as equation (2.3), however many other definitions used in the practice and they are not necessarily non-dimensional. Some of those are given in equations (2.4, 2.5, 2.6) with their assumed dimensions.

Turbine manufacturers make use of scaled models for their turbine designs. The similarity in this case can be summarized as “Given test data on the performance characteristics of a certain type of turbine under certain operating conditions, the performance characteristics of a geometrically similar machine under different operating conditions can be predicted.” So that, model and industrial turbine are geometrically similar. A model will be a reduction of the industrial turbine maintaining a fixed ratio for all homogeneous lengths in order to be geometrically similar. The physical quantities involved in geometric similarity are length, area and volume. If the length ratio is k, the area and volume ratios will be k^2 and k^3 respectively.

Model tests and laboratory developments are the only way to guarantee the efficiency of industrial turbines and their hydraulic behaviour. Standards such as IEC 60193 and 60041 define all the similitude rules and according to these, the specific speed of a turbine is defined as :

$$n_{QE} = \frac{n\sqrt{Q}}{E^{3/4}} \qquad [-] \tag{2.3}$$

where,	Q : discharge	[m^3/s]
	E : specific hydraulic energy of machine	[J/kg]
	n : rotational speed of the turbine	[t/s]
	n_{QE} : specific speed	[-]

These parameters characterize any turbine. In general turbine manufacturers denote the specific speed of their turbines. A large number of statistical studies on large number of schemes have established a correlation of the specific speed and the net head for each type of turbine. Some of the correlation formulas are graphically represented in Figure 2.5.

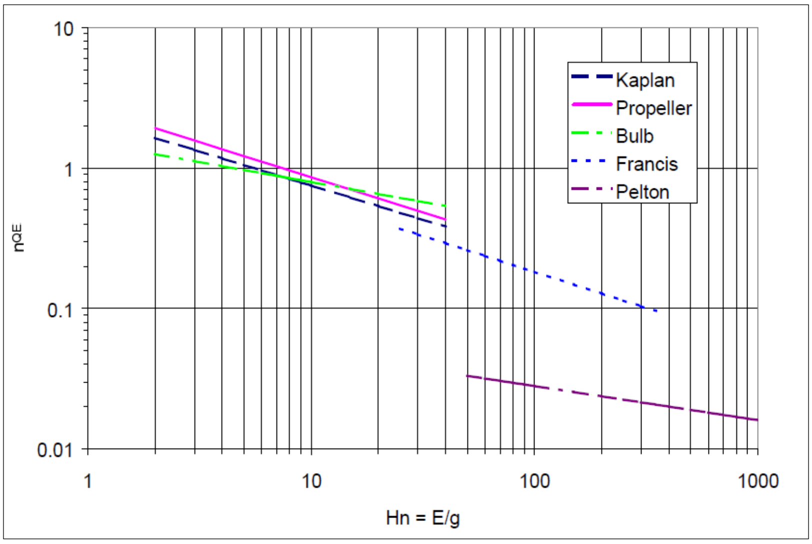


Figure 2.5. Specific speed as a function of net head [10]

Pelton one nozzle $n_{QE}=\frac{0.0859}{H_{net}^{0.243}}$ (Siervo and Lugaresi) (2.4)

Francis $n_{QE}=\frac{1.924}{H_{net}^{0.512}}$ (Lugaresi and Massa) (2.5)

Kaplan $n_{QE}=\frac{2.294}{H_{net}^{0.486}}$ (Schweiger and Gregory) (2.6)

Once the specific speed is known then the fundamental dimensions of the turbine can be roughly estimated. In Pelton turbines, the specific speed increases with the square root of the number of jets which is given in Table 2.3.

Table 2.3. Range of specific speed for each turbine

Turbine type	Specific speed
Pelton one nozzle	$0{,}005 \leq n_{QE} \leq 0{,}025$
Pelton n nozzle	$0{,}005\ n^{0.5} \leq n_{QE} \leq 0{,}025\ n^{0.5}$
Francis	$0{,}05 \leq n_{QE} \leq 0{,}33$
Kaplan, propeller, bulb	$0{,}19 \leq n_{QE} \leq 1{,}55$

In addition, some basic similarity laws can be given as follows :

$$\frac{Q_t}{Q_m} = \frac{\sqrt{H_t}}{\sqrt{H_m}} \frac{D_t^2}{D_m^2} \tag{2.7}$$

$$\frac{n_t}{n_m} = \frac{\sqrt{H_t}}{\sqrt{H_m}} \frac{D_m}{D_t} \tag{2.8}$$

where *t* corresponds to the industrial turbine and *m* to the laboratory model.

2.4. Cavitation

When the static pressure of a liquid flow falls below its vapour pressure of the liquid, then there occurs a formation of the vapour phase. This phenomenon includes the formation of small individual bubbles that are carried out of the low pressure region by the flow and collapse in regions of higher pressure. The formation of these bubbles and their subsequent collapse gives rise to what is called cavitation. These collapses occur violently causing very high pressure at the point of collapse. If the collapse occurs near a wall region, it could wear some part of the wall material due this very high pressures. Therefore, if a turbine work under cavitating conditions whose life will definetely shorten due the wear and consequent vibrations. Nevertheless, turbines are usually designed to work under slightly cavitating conditions in order to substract the most possible hydraulic energy and important point here is not to allow to much cavitation. Cavitation is characterised by the Thoma's (cavitation) coefficient, σ, for the turbines.

$$\sigma = \frac{NPSE}{g\ Hnet} \tag{2.9}$$

where NPSE is the Net Positive Suction Energy defined as :

$$NPSE = \frac{Patm - Pv}{\rho} + \frac{v^2}{2} - g\ H_s \tag{2.10}$$

where,

P_{atm} : atmospheric pressure	[Pa]
P_v : water vapour pressure	[Pa]
ρ : water specific density	[kg/m^3].
g : acceleration due to gravity	[m/s^2]
v : outlet average velovity	[m/s]
H_{net} : net head	[m]
H_s : suction head	[m]

To avoid cavitation, the turbine should be installed at least at the H_s.

$$H_s = \frac{Patm - Pv}{\rho\, g} + \frac{v^2}{g} - \sigma\, H_{net} \tag{2.11}$$

A positive value of H_s means that the turbine runner is over the downstream level, a negative value that it is under the downstream level. As mentioned above, slightly negative value gives the highest net head and therefore the highest energy output. It must be remarked that P_{atm} decreases with the altitude from roughly 1,01 bar at the sea level to 0,65 bar at 3000 m above sea level. Therefore the cavitation conditions will definetely change depending on where the turbine is installed.

The Thoma's sigma, σ, is usually obtained by a model test and it is a value furnished by the turbine manufacturer. According to the statistical studies σ is a function of n_{QE} for the Francis turbine as :

$$\sigma = 1.2715\, n_{QE}^{1,41} + \frac{v^2}{2gHnet} \tag{2.12}$$

GENERATORS

In the small hyroelectric power plants, standard generators should be installed if it is possible, in order to keep the cost of the plant as low as possible. Therefore the rotational speed of the turbine, which is directly proportional to its specific speed, flow and net head, is also important for the synchronization speed of generator that will be used in the scheme.

Generators transform mechanical energy into electrical energy, Figure 2.6. The manufacturer can choose synchronous or asynchronous generator depending on the characteristics of the network that will be connected. Asynchronous generators are simple squirrel-cage induction motors which are not capable of voltage regulation and therefore they are running at a speed directly related to system frequency. They absorb their excitation current from the grid which results absorbing reactive energy from the interconnecting system. They are incapable of providing their own excitation current therefore they cannot generate energy without connecting to a grid. Nevertheless, Synchronous generators are equipped with a DC electric or permanent magnetic excitation systems to control their output voltage before the generator is connected to the grid. Synchronous generayors have a capacity to supply the reactive energy requirement of the power system. Synchronous generators can produce power in isolated mode, which means without connected to the grid, since they have their own grid independent excitation systems.

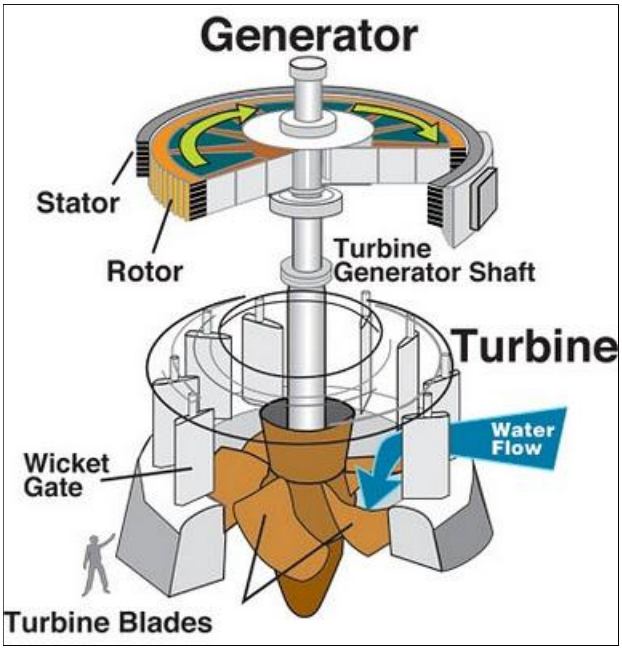


Figure 2.6. Hydro Generator Turbine [16]

Generators synchronization speeds for 50 Hz frequency are given in Table 2.4 with different number of poles. The generator with higher number of poles is more costly than the one with lower number of poles, means that higher rotational speed is economically preferable. Relation between rotational speed and number of poles is simply given as:

$$N_s = \frac{120\,f}{P} \tag{2.13}$$

where,

N_s : synchronous speed of machine [rpm]

f : supply frequency [Hz]

P : number of poles

Table 2.4. Generator synchronization speeds with number of poles (at f = 50 Hz)

# of poles	2	4	6	8	10	12	14
N_s (rpm)	3000	1500	1000	750	600	500	428

Each runner profile is characterized by a maximum runaway speed at which the unit can theoretically reach in case of full load rejection when the hydraulic power is at its maximum. The generator and the speed increaser are designed to withstand this runaway speed. Therefore it must be noted that the cost of generator also increases when the runaway speed is higher. The runaway speeds of different types of turbines can be found in Table 2.5.

Table 2.5. Runaway speeds of turbines

Turbine Type	Runaway speed n_{max}/n
Kaplan single regulated	2.0 – 2.6
Kaplan double regulated	2.8 – 3.2
Francis	1.6 – 2.2
Pelton	1.8 – 1.9
Turgo	1.8 – 1.9

2.5. Turbine Efficiency

Turbine efficiency is defined as the ratio of power supplied by the turbine shaft to the hydraulically available power as:

$$\eta_t = P_m/P_h \tag{2.14}$$

It should be noted that for impulse turbines, such as Pelton and Turgo, the head is a measure at the point of impact of the jet which is always above the downstream water level. This effectively results to a reduction of the head since in theory, a reaction type turbine can be operated below the river level, even with a slightly cavitating conditions. The difference is not negligible for medium head schemes, when comparing the performance of impulse turbines with those of reaction turbines that use the entire available head.

The runner uses a lower energy than the specific hydraulic energy of the whole plant due to hydraulic losses in the system. These losses simply are friction losses in the penstock, spiral casing, guide vanes and runner blades plus remaining kinetic energy in the draft-tube. Moreover, leakage flow in the reaction type turbines that is occuring between the runner and the casing would reduce the available power. Figure 2.7 schematically shows the Energy Grade Line (EGL) and Hydraulic Grade Lines (HGL) in hydroelectric power plant indicating the energy losses.

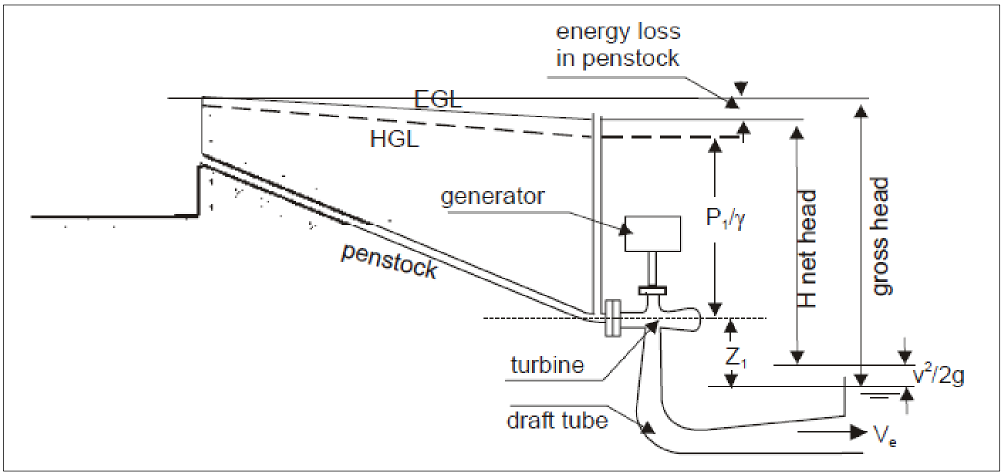


Figure 2.7. Schematic view of the energy losses in the hydroelectric power plant [10]

P_1/γ : Pressure Energy

$\upsilon^2/2g$: Kinetic Energy (velocity head)

EGL : Energy Gradient Line

HGL : Hydraulic Gradient Line

The draft-tube or diffuser is designed to recover the biggest possible fraction of the kinetic energy leaving the blades by converting the kinetic energy to pressure and therefore lowers the turbine exit pressure. For this reason design of a draft-tube has strong impact on a turbine operation and efficiency that only the turbine manufacturer can overcome by means of design procedures and laboratory tests.

Figure 2.8 indicates the typical efficiencies guaranteed by manufacturers for several types of turbines as a function of flow rate. To estimate the overall efficiency of the plant the turbine efficiency must be multiplied by the efficiencies of the generator and the transformer as well.

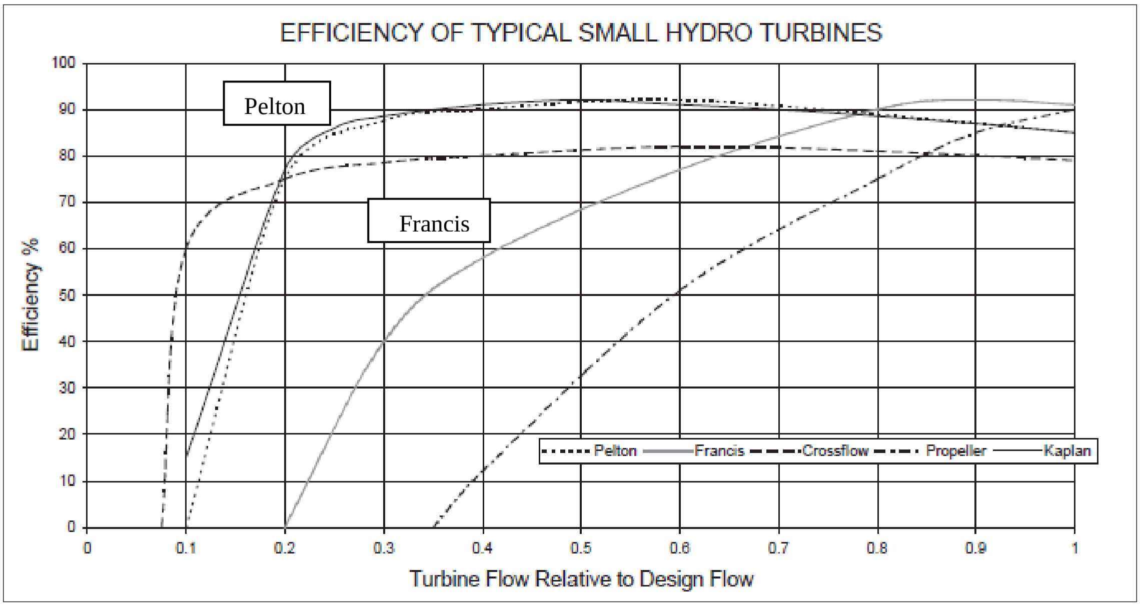


Figure 2.8. Efficiency curves of typical small hydro turbines [12]

When the flow deviates from that nominal discharge so impacts the turbine's hydraulic efficiency. Pelton turbines can operate satisfactorily over a wide range of flow upwards from about 20% of rated discharge. But Francis turbines have approximately 5% higher efficiency at rated discharge values compared to Pelton turbines. If the turbine will operate generally within the range of 0.9 of the design flow than Francis types will be slightly more effective. Neverthless, a Pelton type turbine will be more suitable if the flow variations are large and stay in the lower range in a long time. The best efficiencies of different type of turbines are given in Table 2.6.

Table 2.6. Typical best efficiencies of small turbines

Turbine Type	Best Efficiency
Kaplan single regulated	0.91
Kaplan double regulated	0.93
Francis	0.94
Pelton n nozzle	0.90
Pelton 1 nozzle	0.89
Turgo	0.85

In the head range where Pelton and Francis solutions are overlapping a careful evaluation of the advantages and disadvantages of both concepts is needed. The Francis solution will usually be more economic for clean water and large reservoirs due to lower initial investment cost and higher peak efficiency. The Pelton concept has clear advantages with respect to life cycle costs. The operational flexibility with high part load efficiency and reduced water hammer at load rejection and runaway are further benefits of the Pelton concept [13]. All hydroelectric power plants can be considered as tailor-made for each unique plant. Therefore, someone who successfully recommended and implemented the right solutions can propose different alternatives for unique plant for various operating conditions.

CHAPTER 3

TECHNO-ECONOMIC EVALUATION

This chapter is concentrated on the systematic investigation of techno-economic evaluation of run-of-river hydroelectric power plant. Any investment includes costs as well as earn income over the life of the project. The economic analysis is a comparison of costs and benefits that enables the investor/investors to make an informed choice whether to develop the project or abandon it. It is also possible to make a decision between different projects by using techno-economic analysis, which means that the investment can be made in the one that gives the best return.

3.1. Estimation of Plant Capacity and Energy Production

The estimation of plant capacity and average annual energy production is related with design flow and net head. The average annual energy production, is a function of flow, net head, total efficiency of a plant, water density, gravity acceleration and number of hours for which the specified flow occurs. The nomenclature which will be used for analytical simulation of run-of-river hydropower plants' energy production and for their cost-benefit analysis, is given on page ix.

The electrical power output P_e of every turbine/generator set is proportional to product of total net head H_{net} and discharge volume flow rate Q, thus one may write

$$P_e = \eta \rho g H_{net} Q \tag{3.1}$$

where η is the total efficiency of the hydropower plant including the efficiencies of turbine, generator, gearbox, transformer. The hydro-turbine net head results from the hydrostatic head of the waterfall and the total hydraulic losses by assuming that there is no kinetic energy change

$$H_{net} = h - \delta H_f = (\lambda \frac{L}{d} + \zeta)\frac{8\,Q^2}{g\,\pi^2 d^4} \tag{3.2}$$

with L the length and d the diameter of the penstock used. In EGLENCE-1 HEPP, total hydraulic loss of the system (δH_f) was calculated as 6,02 m at the design volume flow rate of 17,4 m^3/s and hydrostatic head of the installation (h) was 282,25 m, so net head or total head of the hydro turbines used (H_{net}) is found to be 276,23 m.

The energy production over a time period T of a hydropower station which has z hydro-turbines of rated power P_o, reducing both turbine and generator losses, is given as

$$E = \sum_{j=1}^{z} \int_0^T P_j(t)dt \qquad (3.3)$$

equivalently for one year period

$$E = 8760\, z\, \mathrm{CF}\, P_o - \delta E \qquad (3.4)$$

where CF is the corresponding capacity factor of the installation and δE describes the line transmission and transformer losses and power consumption of the auxilary systems annually. More precisely CF can be expressed as the product of the mean technical availability factor Δ and the mean power coefficient ω of the plant:

$$\mathrm{CF} = \Delta\, \omega \qquad (3.5)$$

The availability of the individual unit, Δ_x, can be calculated by using the following formula:

$$\Delta_x = \frac{MTBF}{MTBF+MTTR} \qquad (3.6)$$

MTBF (mean time between failure) and *MTTR* (mean time to repair) values are estimated for each unit. If k units are in parallel operation then Δ can be calculated as

$$\Delta = 1-(1-\Delta_x)^k \qquad (3.7)$$

Table 3.1. Availabilities for parallel operation

Number of units	Availability	Downtime
individual unit, X	99% (2-nines)	3.65 days/year
two X units operating in parallel	99.99% (4-nines)	52 minutes/year
three X units operating in parallel	99.9999% (6-nines)	31 seconds/year

The mean power coefficient, ω, is defined as a yearly averaged energy production during an hour per installed power of the plant:

$$\omega = \int_{Q_{min}}^{Q_{max}} \frac{P(Q)}{P_0} f(Q)\, dQ \tag{3.8}$$

$f(Q)$ is the probability density function describing the available water potential, Q_{min} and Q_{max} are the minimum and maximum working flow rates of the hydro turbine used. A Flow Duration Curve (FDC) can be obtained by integrating the $f(Q)$. In fact, if long term flow measurement data is obtainable then using these data is always preferable as opposed to using generalized mathematical model of stream flow rate duration curve.

The following relation is valid for the power output of any turbine-generator unit

$$P = \begin{cases} 0 & Q \leq Q_{min} \\ P(Q) & Q_{min} \leq Q \leq Q_{max} \\ P_0 & Q_{max} \leq Q \end{cases} \tag{3.9}$$

As a summary, an annual energy yield of hydroelectric power plant can be estimated by using Equation (3.4), the operational characteristics of the turbine-generator sets and FDC.

3.2. Cost-Benefit Analysis

The present value of the investment cost of a plant is a combination of the initial cost and the corresponding maintenance and operation cost of n years operation. The initial cost (IC_0) covers the price of electromechanical equipments, the civil works and balance of plant cost.

$$IC_0 = Pr\, P_0(1+f) \qquad (3.10)$$

$$Pr = Pr_1 + Pr_2 \qquad (3.11)$$

where, Pr *(€/kW)* is reduced ex-works price and Pr_1 describes the electromechanical equipment reduced cost and Pr_2 is civil works cost, including infrastructure, land purchase, weir and intake, water canal, forebay tank, penstock, etc. Pr_2, civil works cost depends on the local situation of every specific site and can be expressed as

$$Pr_2 = \xi\, Pr_1 \qquad (3.12)$$

with ξ taking values between 0,8 and 2,0. Additionally, f in equation (3.10) expresses the installation cost which is given as a fraction of ($f \approx 5\text{-}10\%$) of the Pr.

The maintenance and operation (M&O) cost can be split into the fixed maintenance cost FC and the variable cost VC. Expressing the annual fixed M&O cost as a fraction m_1 of the electromechanical equipment ex-works price plus a fraction m_2 of the civil engineering work cost and assuming an annual increase of the total cost equal to g_m, and i is the investment discount rate (or interest rate). The variable maintenance and operation cost mainly depends on the replacement of k_0 major parts of installation, which may have a shorter lifetime n_k than the complete power station. Using the symbol r_k for the replacement cost coefficient of each k_o major part (e.g. electrical generator, rotor blades etc.).

Finally, the present value of the total investment cost C_n of the run-of-river Hydroelectric Power Plant installation after n years of operation is

$$C_n=(1-\gamma)\mathrm{IC_o}+\mathrm{FC_n}+\mathrm{VC_n} \qquad (3.13)$$

where γ is the subsidy percentage by government.

Money and time are always two variables in any economic analysis for involving any economic value. A certain amount of money paid or received at a point in time has a different value than when it is paid or received at another point in time. The term present value (PV) stands for the current value of a future amount of money or a series of payments, evaluated at a given interest rate. In order to determine the PV of a future amount of money or future value (FV), discounted at a given interest rate *i* (also called discounted rate), for a number of years *n*, the following formula is used:

$$PV_0 = \frac{1}{(1+i)^n} FV_n \qquad (3.14)$$

The term $1/(1+i)^n$ is called present value factor (PVF). Therefore, for a discounting rate *i*, the cost C_n (or the benefit B_n), disbursed or received in the year *n*, is discounted to the year zero by the equation:

$$C_0 = \frac{1}{(1+i)^n} C_n \qquad (3.15)$$

Comparing the present value of the total investment cost and the corresponding total revenues, one has the ability to estimate the net present value, NPV, of the investment after *n* years of operation, i.e.

$$NPV = \sum_{k=1}^{k=n} \frac{R_k - (IC_k + FC_k + VC_k)}{(1+i)^k} + V_r \qquad (3.16)$$

where, IC_k : Investment Cost in period *k*

R_k : Revenues in period *k*

FC_k : Fixed M&O cost in period *k*

VC_k : Variable M&O cost in period *k*

V_r : Residual value of the investment over its lifetime

i : Periodic discount rate

n : Number of lifetime periods

The calculation is usually done for a period of thirty years, because both revenues and expenses become negligible after this period due to the discounting techniques used in this method. Projects where NPV is negative will be rejected, since their discounted benefits during the lifetime of the project are insufficient to cover the initial costs. Among projects which have positive NPV, the better ones will be those with greater NPV value.

The NPV results are quite sensitive to the discount rate, and if the appropriate rate is not selected correctly then NPV may alter or even reverse the efficiency ranking of projects. The rate used should be chosen carefully since changing the discount rate can affect the outcome of the evaluation. Therefore, the discount rate will allow a private developer to choose between investing in a project or in keeping his saving in the bank. This discount rate, depending on the inflation rate, usually varies between 5% and 12%. Additionally, if the net revenues or payments are constant in time which are in order of uniform series, their discounted value a_n is given by the equation (3.17).

$$a_n = \frac{1-(1+i)^{-n}}{i} \tag{3.17}$$

Then the Present Value of an Annuity (PVA) over *n* years with annual payment C will be calculated by equation (3.18).

$$PVA_n = a_n C \tag{3.18}$$

There has been some debate regarding the use of a constant discount rate when calculating the NPV. Recently, economic theory suggests the use of a declining discount rate is more appropriate for longer-term projects. Correct use of a declining discount rate places greater emphasis on costs and benefits in the distant future. Investment opportunities with a stream of benefits accruing over a long project lifetime therefore appear more attractive.

The internal rate of return IRR of an investment operating during an *n*-year period is predicted by setting the NPV equal to zero, thus we get

$$IRR = i^* \text{ when } NPV(i^*) = 0 \tag{3.19}$$

A numerical method based on the iterative solution of the non-linear break-even equation (3.19) is used for the estimation of IRR. After determining the IRR, it will be compared to the rates that could be earned by investing the money in other projects or investments. If the IRR is less than the cost of borrowing used to fund a project then the project will clearly be a money-loser. However, usually a developer will insist that IRR must be at least several percentage points higher than the cost of borrowing for deciding whether a project will be acceptable or not. The higher IRR is a necessity to compensate for the risk, time and any problems associated with the project. Additionally, a valuable way of deciding on one of the different investment alternatives can be a selecting one which has highest IRR.

CHAPTER 4

CASE STUDY ON EGLENCE-1 HEPP

Eglence-1 HEPP is a first run-of-river Hydroelectric Power Plant which is constructed on Eğlence Creek passes through Karaisalı town of Adana, located on Southern part of Turkey. The design flow rate (Q) and net head (H_{net}) were calculated as 17,4 m^3/s and 276,23 m respectively by En-Su Engineering Company. DSI has defined the reserved or residual flow as 1 m^3/s for months December, January, February, March, April, May and as 0,65 m^3/s for rest of a year.

The long-term daily avarage flow measurements of Eglence Weir which are given in APPENDIX A will be used with above design parameters and DSI's constraints to discuss and to define proper turbine types and capacities for our case scenario. All raw and processed data, graphics and related programs and calculations can be found in CD given in APPENDIX B.

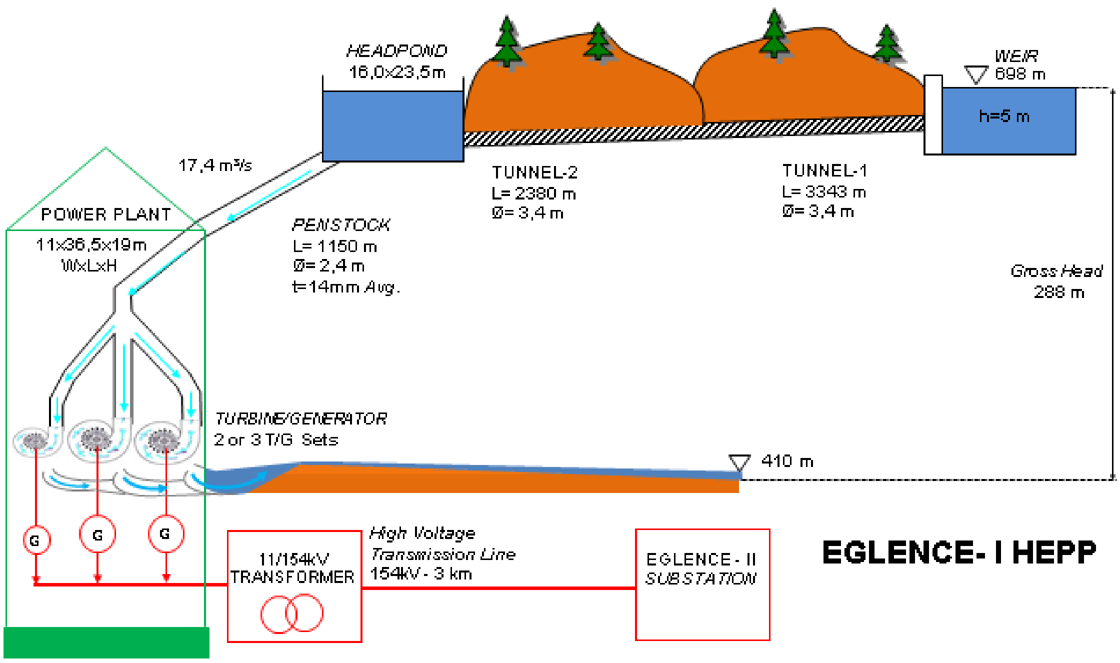


Figure 4.1. Schematic view of Eglence-1 HEPP facilities

Water storage capacity of Eglence-1 HEPP is the sum of storage capacities of weir, tunnel 1, tunnel 2 and headpond which are given in Figure 4.1 schematically. This capacity is important to discuss the ability of ON/OFF operation of the units to work at optimum conditions i.e. operating at periods of having higher energy selling prices. An adequate water storage capacity also supports the operator for loading a machine at rated discharge with a maximum efficiency. One of the main disadvantages of run-of-river HEPP is that they have not enough reservoir but in our case total 66.201 m^3 of storage capacity has been calculated which includes 6.804 m^3 for the weir, 54.340 m^3 for the tunnels and 5.057 m^3 for the headpond.

4.1. Investigation of Flow Regime

The plant has been designed with 17,4 m^3/s discharge (Q) value by design company. We have to investigate flow regime to share this value effectively by two or three turbines for optimization of power house.

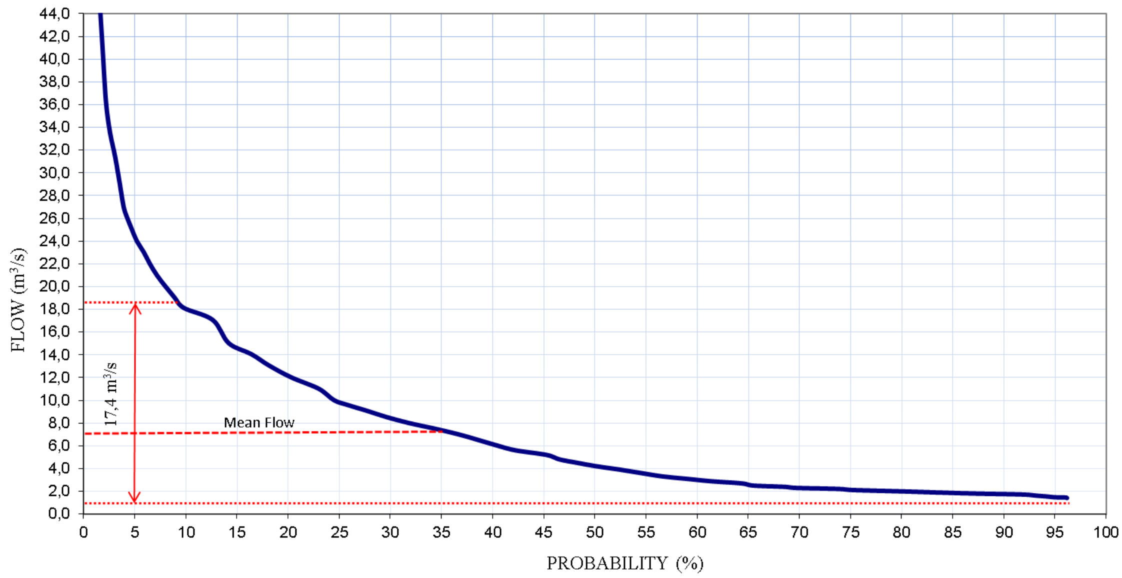


Figure 4.2. Flow Duration Curve of Eglence Weir

The FDC which is obtained from long term measurements given in Figure 4.2 shows that a probability of design flow 17,4 m^3/s, after residual flow, is 9,15% in a year which is about 33,4 days. The probability of annual average flow which is less than 4 m^3/s is above 52%, therefore 3 m^3/s or less can be used for energy production for long period after reducing 1 m^3/s reserve flow, Figure 4.3.

If two units will be used then there can be two alternative flow shares which are 8,7 m^3/s for similar size units or 11,4 m^3/s for large turbine and 6 m^3/s for small one. If three similar units will be used then their flows will be 5,8 m^3/s or if different sizes will be preferred then 7,2 m^3/s for large units and 3 m^3/s for small turbine. These alternatives are summarized in Table 4.1.

Table 4.1. Discharge flow alternatives of turbines for Eglence-1 HEPP

	Unit #1 (m^3/s)	Unit #2 (m^3/s)	Unit #3 (m^3/s)
Alternative 1	8,7	8,7	-
Alternative 2	11,4	6,0	-
Alternative 3	5,8	5,8	5,8
Alternative 4	7,2	7,2	3,0

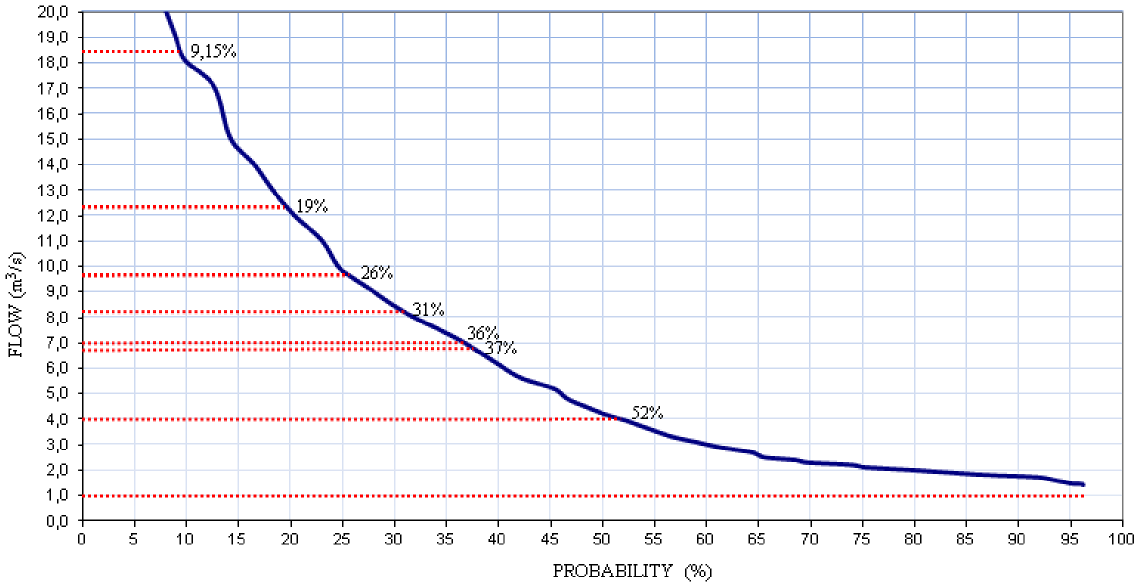


Figure 4.3. Probabilities of different alternative flows

Figure 4.3 can be summarized as, if a continuous operation is preferred then a small Pelton unit with 3 m^3/s discharge capacity must be installed because of its relative higher efficiency at lower flows, see Figure 2.8. But in our case there is approximately 66.000 m^3 reserve opportunity and this reservoir can be discharged in nearly two hours with 8,7 m^3/s unit and in nearly six hours with 3 m^3/s unit. Therefore all four alternatives can be applicable with Francis type turbines if ON/OFF operation of units is possible. This reservoir can be filled approximately in 18 hours with 1 m^3/s flow rate.

The monthly average flows after reserve flow which are given in Table 4.2 show that the ON/OFF operation must be considered at least between June and November. The high energy output can be produced during spring time according to long term monthly average flows of long years data which are given in this table. The winter time has a secondary importance for continuous energy production whereas summer time and autumn seasons need ON/OFF operation of turbines because of less flows.

Table 4.2. Monthly average flows of Eglence Weir (m^3/s) by considering reserve flows

YEARS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.	AVG.
1971	2,110	5,571	4,596	3,488	5,958	8,860	16,602	8,247	3,637	1,848	1,654	1,293	5,322
1972	1,031	2,419	2,577	2,061	4,725	8,685	11,838	10,889	6,367	2,705	2,077	1,833	4,767
1973	1,368	1,291	0,779	0,719	2,474	6,723	5,845	5,101	2,947	1,104	0,436	0,593	2,448
1974	0,522	0,795	1,269	0,708	2,352	11,279	5,297	2,782	1,360	0,484	0,715	0,707	2,356
1975	0,944	0,923	11,107	10,127	11,021	14,834	16,901	16,080	6,717	2,644	1,418	1,414	7,844
1976	1,121	1,683	2,904	5,720	5,527	5,896	14,762	13,011	6,316	2,295	1,610	1,684	5,211
1977	3,991	5,787	13,206	8,457	15,070	12,782	14,492	13,015	4,576	2,194	1,175	1,320	8,005
1978	1,469	1,097	1,672	13,553	15,559	14,933	16,987	11,591	4,094	1,701	1,160	1,021	7,070
1979	3,253	3,548	7,760	12,607	11,471	7,180	7,234	6,132	5,153	2,085	1,125	0,663	5,684
1980	1,418	4,307	9,358	12,210	9,542	14,995	16,776	14,371	4,959	2,304	1,375	1,336	7,746
1981	1,125	2,018	2,906	14,576	17,400	17,400	16,900	13,937	7,314	3,809	1,813	1,870	8,422
1982	1,539	2,149	10,366	6,730	4,254	6,540	12,064	9,922	4,600	3,622	1,755	2,088	5,469
1983	1,591	1,340	0,946	3,368	8,849	13,100	16,371	9,464	5,574	1,986	1,524	1,008	5,427
1984	1,289	4,053	10,971	7,431	14,856	12,826	15,374	9,313	3,699	2,130	1,667	1,033	7,054
1985	0,767	2,089	1,644	6,099	9,225	10,927	13,953	7,629	3,572	1,853	1,239	1,070	5,006
1986	4,595	8,241	2,237	8,305	6,959	6,063	5,764	3,619	3,788	1,403	0,979	0,970	4,410
1987	1,556	1,536	2,061	3,720	3,783	9,861	16,761	13,117	14,548	5,952	1,668	0,917	6,290
1988	1,351	2,574	6,845	6,601	11,174	17,400	17,400	12,923	6,625	2,480	1,557	1,455	7,365
1989	2,858	7,596	9,662	6,164	5,273	7,087	4,596	2,837	2,102	1,555	1,399	1,901	4,419
1990	1,263	4,159	5,451	2,633	8,028	14,983	9,536	4,711	2,626	1,279	0,964	0,909	4,712
1991	1,064	1,195	0,874	0,531	3,229	5,608	10,577	3,311	2,111	0,917	0,755	0,792	2,580
1992	3,324	2,039	10,596	8,778	5,246	10,167	15,167	9,940	7,894	2,799	1,620	1,237	6,567
1993	0,953	4,474	7,809	4,550	6,140	10,609	14,228	13,867	6,326	2,071	1,500	1,465	6,166
1994	1,374	0,989	1,188	9,103	8,998	11,137	7,485	6,288	2,833	1,431	1,088	0,771	4,391
1995	1,512	5,277	6,127	7,363	7,689	9,282	13,952	9,694	4,800	1,955	1,245	1,047	5,828
1996	1,200	6,709	6,582	11,553	11,984	16,652	16,466	12,115	4,463	2,076	1,378	1,539	7,727
1997	2,110	2,177	10,041	6,716	3,389	3,830	14,740	10,130	4,931	2,082	1,748	1,455	5,279
1998	3,320	5,159	9,957	6,008	7,342	8,481	14,696	8,559	4,475	2,049	1,608	1,132	6,066
1999	1,631	2,078	10,861	8,175	13,922	11,256	15,053	6,299	3,338	1,748	1,417	1,066	6,404
2000	1,359	1,086	1,079	2,918	7,969	10,614	14,805	12,506	3,823	1,608	1,514	1,244	5,044
2001	1,307	2,461	2,047	1,487	2,463	3,308	3,463	9,029	2,931	1,099	0,891	1,059	2,629
2002	0,902	1,220	17,129	11,929	13,034	13,603	17,098	10,652	4,568	2,532	2,252	2,103	8,085
2003	1,559	2,044	1,283	2,041	5,300	8,681	14,007	6,864	7,715	2,306	1,282	1,196	4,523
2004	1,258	1,939	3,780	11,376	13,922	12,838	7,678	5,256	2,683	1,379	0,978	0,709	5,316
2005	0,756	1,310	0,971	0,730	2,930	4,127	5,631	2,769	2,043	0,731	0,741	0,624	1,947
2006	0,858	3,419	2,968	1,743	7,592	9,369	7,238	2,898	1,689	0,981	0,457	0,620	3,319
2007	1,758	5,696	1,201	0,961	3,303	3,511	2,412	3,683	1,418	0,429	0,410	0,409	2,099
2008	0,656	1,317	5,881	1,292	2,314	5,052	4,609	2,243	1,307	0,366	0,276	0,434	2,146
2009	0,596	1,048	0,632	2,708	7,783	11,084	13,225	11,253	3,523	1,723	0,909	0,944	4,619
2010	0,862	4,600	8,622	10,772	10,900	9,945	12,780	6,023	2,954	1,778	1,057	1,030	5,944
AVG. (m^3/s)	1,588	2,985	5,449	6,150	7,974	10,038	12,019	8,552	4,410	1,937	1,261	1,149	5,293

4.2. Rotational Speed and Dimensions

By using Lugaresi and Massa's approach [14] (Equation 2.5) specific speed can be calculated as 0,1082 which is in Francis Turbine's range of 0,05 ≤ n_{QE} ≤ 0,33 from Table 2.3.

$$n_{QE} = \frac{1.924}{276.23^{0.512}} = 0,1082 \tag{4.1}$$

The corresponding speeds (n) as turns per second are calculated for different discharge alternatives by using equation (2.3) and afterwards specific speeds will be recalculated by estimating realistic synchronous rotational speeds (N_s) of possible generators. These calculations can be found in calculations file of APPENDIX-B (sheet.9). Related results are summarized in Table 4.3.

Table 4.3. Rotational and Specific speeds for different discharge aternatives

Discharge (Q) m^3/s	8,7	11,4	6	5,8	7,2	3
n (t/s)	13,78	12,03	16,59	16,87	15,14	23,46
N (rpm)	827	722	995	1012	909	1408
N_s (rpm) Alternative A	1000	750	1000	1000	1000	1500
n_{QE} for Alternative A	0,1309	0,1124	0,1087	0,1069	0,1191	0,1153
N_s (rpm) Alternative B	750	600	750	750	750	1000
n_{QE} for Alternative B	0,0982	0,0899	0,0815	0,0802	0,0893	0,0769

When n_{QE} is defined, the dimensions of a Francis Turbine can be estimated by using the dimensions of its runner, with the reference diameters D1, D2 and D3 given in Figure 4.4.

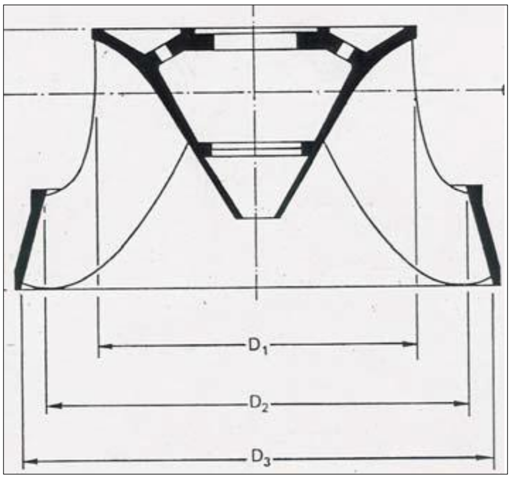


Figure 4.4. Cross section of a Francis Runner [10]

A preliminary design diameters of the Francis Turbine Runner, which are based on a statistical analysis of Lugaresi and Massa, can be found by using equations (4.2, 4.3, 4.4). These results will not be sufficient on their own for complete turbine design. Particularly we have to consider the cavitation criterion too.

The outlet diameter D_3 is given by equation 4.2.

$$D_3 = 84{,}5\ (0{,}31 + 2{,}488\ n_{QE})\ \frac{\sqrt{Hnet}}{60\ n}\ [\text{m}] \tag{4.2}$$

The inlet diameter D_1 is given by equation 4.3

$$D_1 = (0{,}4 + 0{,}095/n_{QE})\ D_3\ [\text{m}] \tag{4.3}$$

The inlet diameter D_2 is given by equation (4.4) for $n_{QE} > 0.164$

$$D_2 = D_3 / (0.96 + 0.3781\ n_{QE})\ [\text{m}] \tag{4.4}$$

If $n_{QE} < 0.164$ then $D_2 = D_1$

The results of dimension calculations and Thoma's (cavitation) coefficient, σ, for the turbines with H_s values are given in Table 4.4. The related calculations can be found in calculations file of APPENDIX-B (sheet.9).

Table 4.4. Dimensions of different Turbine alternatives

a. Alternative A

Discharge (Q) m^3/s	8,7	11,4	6	5,8	7,2	3
n (t/s)	13,78	12,03	16,59	16,87	15,14	23,46
N (rpm)	827	722	995	1012	909	1408
N_s (rpm) Alternative A	1000	750	1000	1000	1000	1500
n_{QE} for Alternative A	0,1309	0,1124	0,1087	0,1069	0,1191	0,1153
D3 (m)	0,893	1,104	0,815	0,809	0,852	0,559
D1 = D2 (m)	1,005	1,375	1,038	1,042	1,020	0,684
Thoma's coefficient, σ	0,0731	0,0591	0,0564	0,0551	0,0640	0,0612
H_s (m)	-10,224	-6,358	-5,620	-5,257	-7,729	-6,951

b. Alternative B

Discharge (Q) m^3/s	8,7	11,4	6	5,8	7,2	3
n (t/s)	13,78	12,03	16,59	16,87	15,14	23,46
N (rpm)	827	722	995	1012	909	1408
N_s (rpm) Alternative B	750	600	750	750	750	1000
n_{QE} for Alternative B	0,0982	0,0899	0,0815	0,0802	0,0893	0,0769
D3 (m)	1,038	1,249	0,960	0,954	0,997	0,704
D1 = D2 (m)	1,419	1,820	1,503	1,512	1,459	1,152
Thoma's coefficient, σ	0,0489	0,0433	0,0378	0,0370	0,0429	0,0349
H_s (m)	-3,562	-2,008	-0,493	-0,251	-1,899	0,323

The final choice will be executed after techno-economic evaluation, but Alternative 3 which includes three smilar units with 5,8 m^3/s rated discharge and with N_s equals 750 rpm (Alternative B) can be choosen as the best solution by investigating above data. Because, this case has minimum σ and optimum H_s, which results lesser excavation for power house and which reduces the initial investment cost of civil works. Additionally, three similar units support to optimize spare parts investment. If there would exist two different, large and small, Francis turbines in power plant then more spare parts had to be stored for these two different types.

4.3. Techno-economic Evaluation

The cost and benefit estimations are needed for a techno-economic evaluation of any power plant. A Revised Feasibility Report of Eglence-1 Weir and HEPP [15] will be used for the cost estimations of facilities which are given in figure 4.1 and for an energy market selling unit price. The estimated average annual energy yield which is 110.550 MWh/year, has been calculated by using daily average flows of long years' data and by considering reserve flows, figure 4.5, the related calculations can be found in CD given in APPENDIX B (sheet.8 of calculation file).

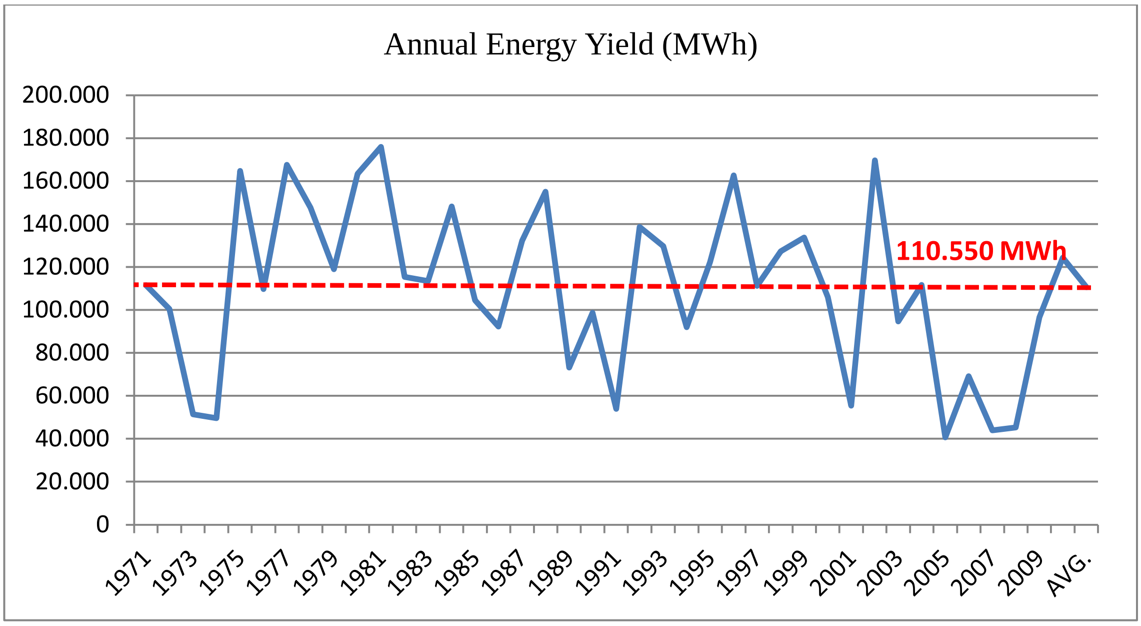


Figure 4.5. Annual Energy Yield of Eglence-1 HEPP

Annual Energy Yield of Eglence-1 HEPP has been detailly investigated by using monthly energy production potentials of previous 480 months to obtain probabilty density curve with 1.000 MWh/month increments. Total energy yield calculation for 40 years has been found as 4.422.000 MWh by 480 months. 16% of this period, i.e, 78 months have 2.000 to 3.000 MWh/month energy production possibilty due to flow data of Eglence Creek, figure 4.6. But this period only covers 156.000 to 234.000 MWh energy production which is 3,5-5% of total energy production, figure 4.7. Similarly, 2% of 40 years which have 24.000-25.000 MWh/month energy production possibility, corresponds to approximately 250.000 MWh total energy production, i.e. %5,6 of overall energy yield of a plant. The related calculations and graphics can be found in CD given in APPENDIX B (sheet.8 of calculation file).

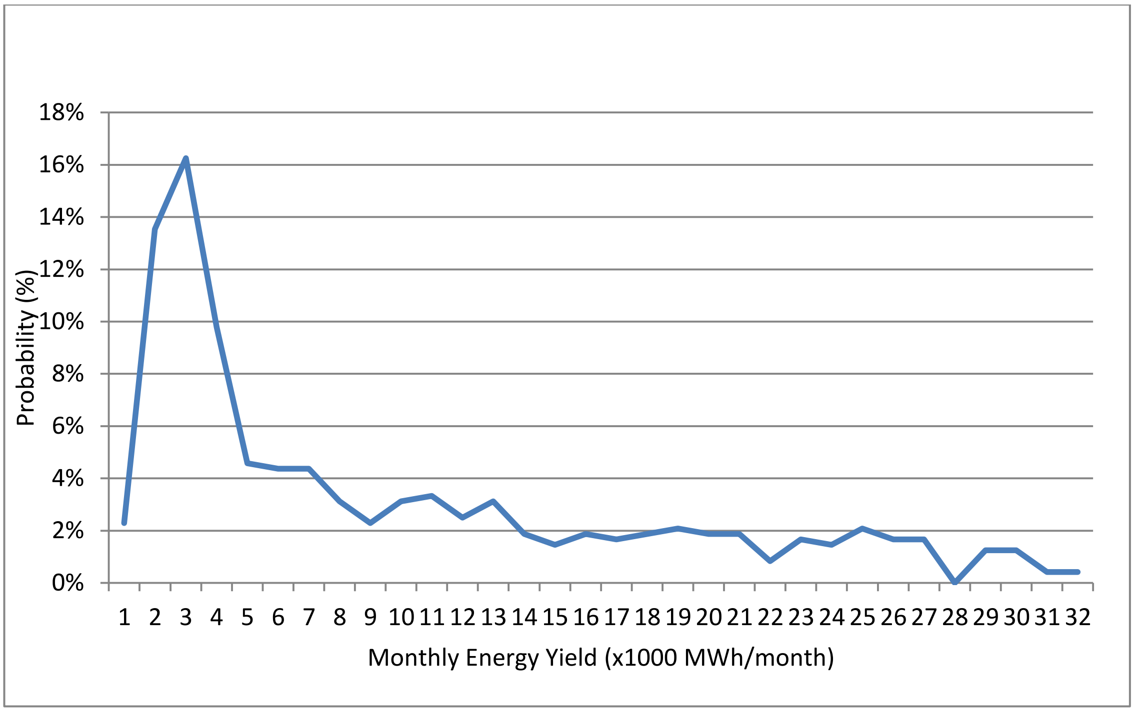


Figure 4.6. Probability Density Curve for Monthly Energy Yield

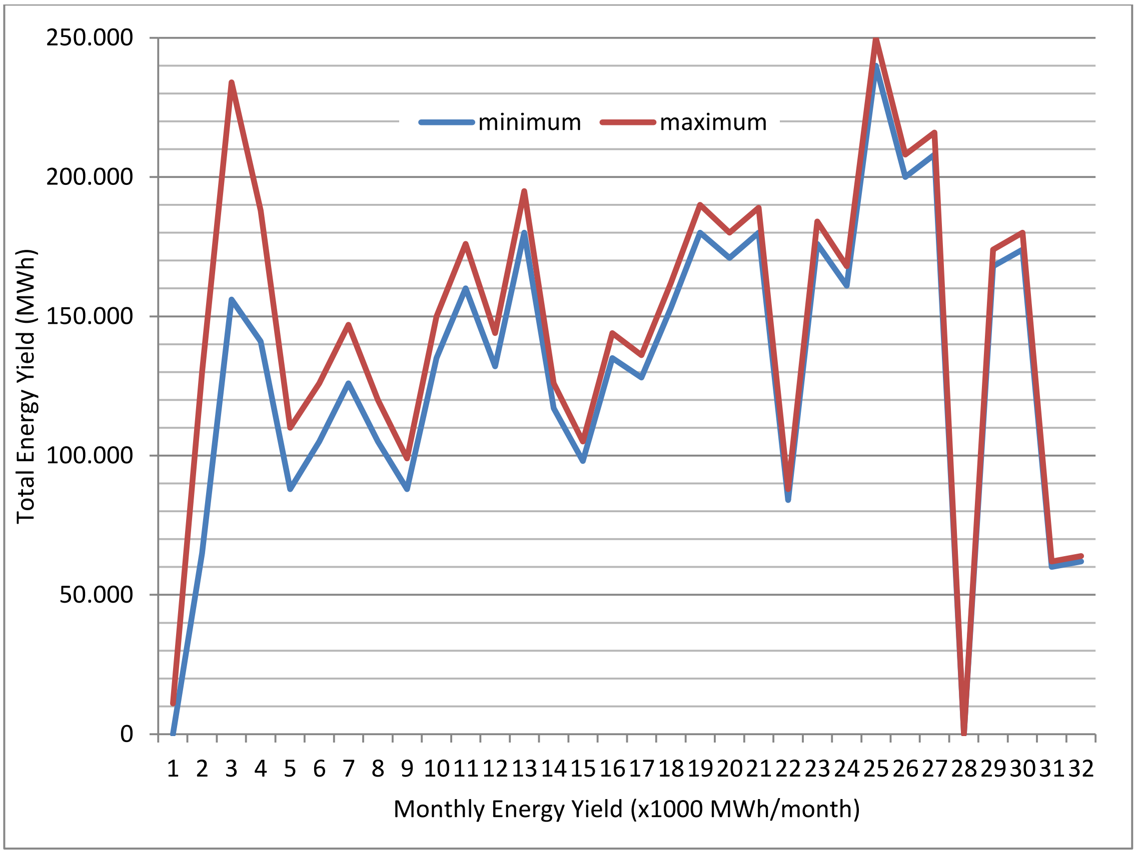


Figure 4.7. Total Energy Production for Monthly Energy Yield

Table 4.5. Cost estimation of Eglence-1 HEPP taken from reference [15]

Description	Cost (USD)	Portion (%)
Weir	1.759.976	3%
Tunnels	23.347.124	42%
Headpond	1.151.483	2%
Penstock	6.200.365	11%
Power House	11.843.388	
- Power House Civil Works	2.093.388	4%
- *Electromechanical Works*	*9.750.000*	18%
Energy Transmission Line	*500.000*	1%
Site Facilities and roads	850.000	2%
Total Civil Works (USD)	**35.402.336**	**64%**
Total Electromechanics (USD)	***10.250.000***	***18%***
Total Estimated Cost (USD)	**45.652.336**	**82%**
Unforeseen expenses	2.920.197	5%
Cost of Construction (USD)	**48.572.533**	**87%**
Engineering & Privitization	2.761.960	5%
Cost of Project (USD)	**51.334.493**	**92%**
Interest cost during construction	4.269.017	8%
Total Investment Cost (USD)	**55.603.510**	**100%**

Installed capacity : 42.210 kW

Estimated average annual energy yield : 110.550 MWh

First year annual revenue : USD 9.065.100 [1]

Total investment cost : USD 55.603.510 from Table 4.5.

The investment cost per installed power : 1.317 USD/kW

The investment cost per annual MWh : 503 USD/MWh

It is assumed that the project will be constructed in two years. In first year cost of 60% of civil works, 20% of electromechanical works and half of other expenses will be invested, in second year remaining portions of related works will be spent. Therefore, USD 26.219.039 and USD 29.384.471 will be invested in first and in second years respectively. The power plant is commissioned at the end of second year and becomes at the beginning of third year (year zero). The estimated annual revenues and the Operation and Maintenance (O&M) costs are made effective at the end of each year. O&M cost per year is estimated as USD 2.100.000, related calculations can be found in CD given in APPENDIX B (sheet.11 of calculation file).

[1] Energy selling price has been estimated as USD Cent 8,20 per kWh due to Energy Market Prices. It is also assumed that the selling price of the electricity will increase every year one point less than the inflation rate.

Table 4.6. Cash Flow Analysis

Investment Cost (USD)	O&M Costs (USD)	Discount rate "r" (%)	Lifetime (year)
55.603.510	2.100.000	8	35

Year	Investment	Revenues	O&M	Cash Flow	Cumulated Cash Flow
-2	26.219.039	0	0	-26.219.039	-26.219.039
-1	29.384.471	0	0	-29.384.471	-55.603.510
0	0	8.512.350	2.100.000	6.412.350	-49.191.160
1	0	8.427.227	2.100.000	6.327.227	-42.863.934
2	0	8.342.954	2.100.000	6.242.954	-36.620.979
3	0	8.259.525	2.100.000	6.159.525	-30.461.455
4	0	8.176.929	2.100.000	6.076.929	-24.384.525
5	0	8.095.160	2.100.000	5.995.160	-18.389.365
6	0	8.014.209	2.100.000	5.914.209	-12.475.156
7	0	7.934.066	2.100.000	5.834.066	-6.641.090
8	0	7.854.726	2.100.000	5.754.726	-886.364
9	0	7.776.179	2.100.000	5.676.179	4.789.814
10	0	7.698.417	2.100.000	5.598.417	10.388.231
11	0	7.621.433	2.100.000	5.521.433	15.909.664
12	0	7.545.218	2.100.000	5.445.218	21.354.882
13	0	7.469.766	2.100.000	5.369.766	26.724.648
14	0	7.395.068	2.100.000	5.295.068	32.019.716
15	0	7.321.118	2.100.000	5.221.118	37.240.834
16	0	7.247.907	2.100.000	5.147.907	42.388.741
17	0	7.175.427	2.100.000	5.075.427	47.464.168
18	0	7.103.673	2.100.000	5.003.673	52.467.841
19	0	7.032.636	2.100.000	4.932.636	57.400.478
20	0	6.962.310	2.100.000	4.862.310	62.262.788
21	0	6.892.687	2.100.000	4.792.687	67.055.475
22	0	6.823.760	2.100.000	4.723.760	71.779.235
23	0	6.755.523	2.100.000	4.655.523	76.434.758
24	0	6.687.967	2.100.000	4.587.967	81.022.725
25	0	6.621.088	2.100.000	4.521.088	85.543.813
26	0	6.554.877	2.100.000	4.454.877	89.998.690
27	0	6.489.328	2.100.000	4.389.328	94.388.018
28	0	6.424.435	2.100.000	4.324.435	98.712.452
29	0	6.360.190	2.100.000	4.260.190	102.972.643
30	0	6.296.588	2.100.000	4.196.588	107.169.231
31	0	6.233.623	2.100.000	4.133.623	111.302.854
32	0	6.171.286	2.100.000	4.071.286	115.374.140
33	0	6.109.573	2.100.000	4.009.573	119.383.714
34	0	6.048.478	2.100.000	3.948.478	123.332.191

The generation licence will be valid during 44 years after commissioning of a power plant. The discount rate is 8% and the residual value nil. Any HEPP needs to be renovated after 35 years of operation, therefore cashflow of a power plant given in Table 4.6 is calculated accordingly.

NPV of cash flow is calculated by using equation 3.16 in electronic spreadsheet given in CD of APPENDIX B (sheet.11 of calculation file). The result is USD 14.856.001 with tariff of USDCent 8,20 per kWh and 8% inflation rate. The IRR is computed as 10,37%, by using iterative calculation process for diffrent discount rates (r). The NPV and IRR are strongly dependent on the price paid for electricity and discount rate, Table 4.7.

Table 4.7. NPV and IRR for different tariffs where r is 8% and the period is 35 years

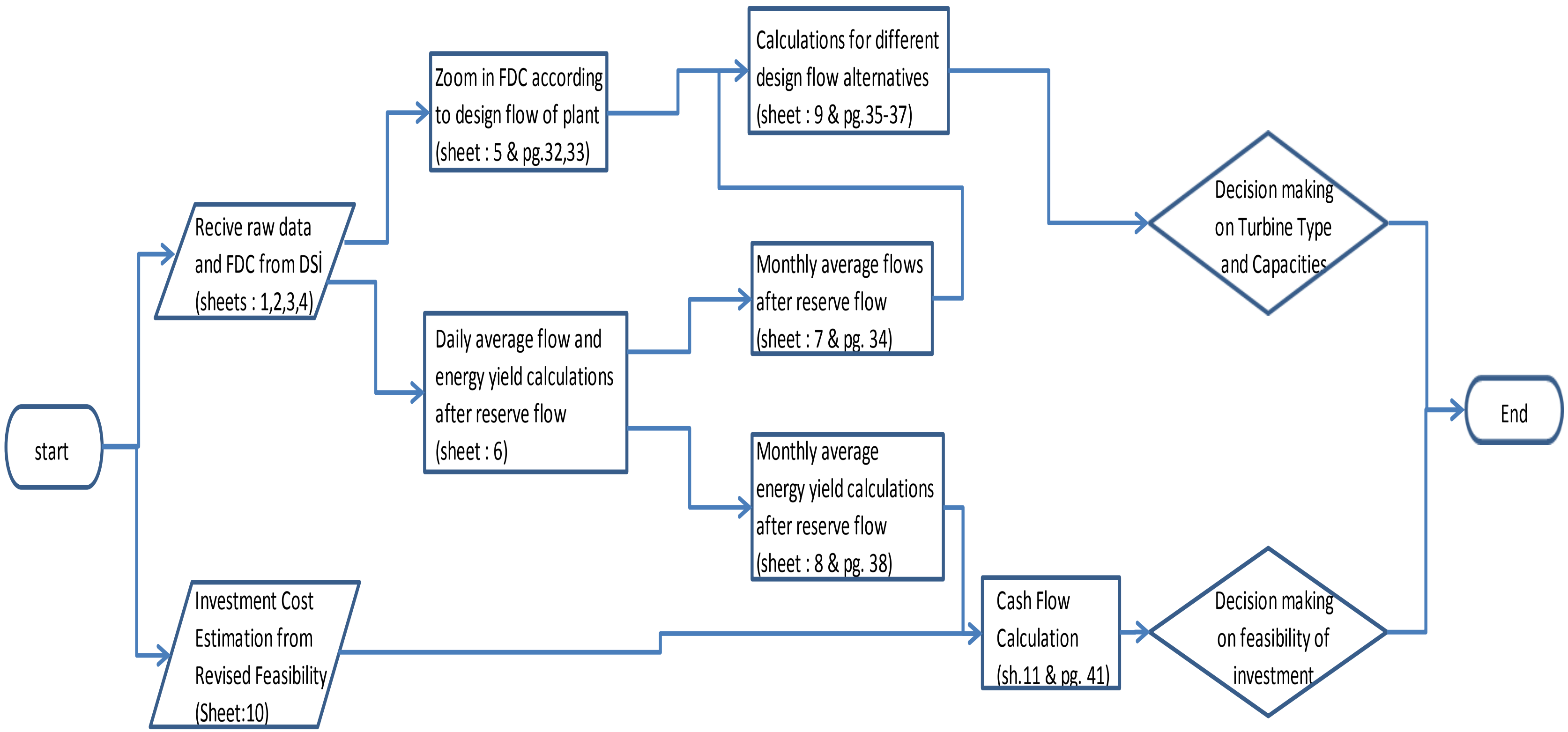
Tariff (%)	70%	80%	90%	100%	110%	120%	130%
Tariff ($Cent/kWh)	5,74	6,56	7,38	8,20	9,02	9,84	10,66
NPV (1000$)	-16.225	-5.865	4.495	14.856	25.216	35.577	45.937
IRR	5,15%	7,00%	8,74%	10,37%	11,95%	13,47%	14,94%

Eglence-1 HEPP investment is valuable one with USD 14,8 million NPV and 10,37% IRR value where interest rate (r) is 8% and tariff is USD Cent of 8,20. If interest rate decreases then the profit of this investment increases accordingly, Table 4.8.

Table 4.8. NPV for different r where tariff is 8,20 $Cent/kWh for 35 years

r (%)	5%	6%	7%	8%	9%	10%	11%
NPV (1000$)	42.543	31.828	22.704	14.856	8.037	2.026	-3.239

Flowchart for describing the calculation process
(APPENDIX B_Calculatios for Eglence I HEPP)



CHAPTER 5

CONCLUSION

A typical run-of-river hydropower plant design procedure has been overviewed and decision making on its turbine types and capacities have been investigated in this thesis. The procedures have been applied on a case study of Eglence-1 HEPP which has design flow rate (Q) of 17,4 m^3/s and net head (H_{net}) of 276,23 m.

All hydroelectric power plants are designed as tailor-made and different alternatives for each plant are considered for various operating conditions and choises are made among those.

Although, one of the main disadvantages of run-of-river HEPP is that they do not have enough reservoir but in our case total 66.201 m^3 of storage capacity has been calculated by design company which includes of 6.804 m^3 for weir, 54.340 m^3 for tunnels and 5.057 m^3 for headpond. This capacity is very important parameter in determining the operation scenerio since it brings the ability of ON/OFF operation of the units and that would make the plant to work at the optimum conditions. If Eglence-1 HEPP would not have such a reservoir then we have to choose at least one small Pelton type turbine which is more suitable for the flow variations are large and stay in the lower range of design flow, Figure 4.3 and Table 4.2 show this fact in terms of average flow rates.

In CHAPTER 4, flow regime, reservoir capacity, different flow ratings for Francis turbine alternatives have been studied for Eglence-1 HEPP. Also, techno-economic evaluation of a plant has been investigated at the end of this chapter. This evaluation showed us that IRR of this project is good enough to make investment under current market conditions, but if the energy selling prices will decrease amazingly while the interest rate will be increasing then the project can be a money-loser.

Three smilar Francis turbines with 5,8 m^3/s rated discharge and with synchronous rotational speed, N_s, equals 750 rpm has been choosen as the best fit solution by investigating that this solution has minimum cavitation coefficient, σ, and the optimum suction head, H_s, which reduces excavation works. Additionally, three similar units support to optimize spare parts investment. If there would exist two different, large and small, Francis turbines in power plant then more spare parts had to be stored for these two different types.

The cost and benefit estimations for a techno-economic evaluation of Eglence-1 HEPP with average annual energy yield of 110.550 MWh/year, USD Cent 8,20 per kWh of energy selling price and 8% inflation rate show that this investment earns USD 14,8 million NPV with 10,37% IRR during 35 years of operation.

REFERENCES

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APPENDIX A

DAILY FLOWS OF EGLENCE WEIR

1971 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,760	2,908	14,353	3,059	3,513	9,367	28,252	15,335	5,167	2,916	2,009	2,281
2	1,760	2,516	7,086	3,059	3,513	7,932	22,360	15,335	5,167	2,916	2,009	2,009
3	1,760	2,274	6,285	3,059	3,701	8,234	19,716	14,957	5,167	2,750	2,009	2,009
4	1,760	2,274	13,899	2,908	4,457	9,065	20,169	13,069	5,167	2,750	2,281	1,873
5	1,662	2,153	57,033	2,908	5,303	9,065	19,716	11,935	4,933	2,750	3,248	1,737
6	1,760	2,153	11,180	2,908	6,028	8,838	18,507	11,935	4,933	2,750	3,082	2,417
7	1,858	2,274	7,373	2,908	6,542	8,838	17,979	11,558	4,933	2,583	2,417	3,445
8	1,760	2,274	6,799	2,908	6,799	8,838	17,979	10,047	4,933	2,583	3,837	2,916
9	1,760	2,274	6,799	2,908	6,285	8,838	17,525	10,047	4,933	2,583	3,445	2,417
10	1,760	2,516	5,771	3,210	5,771	8,838	16,619	8,461	5,401	2,750	3,248	2,281
11	2,274	1,957	4,457	4,268	4,880	8,838	13,446	9,669	5,401	2,750	3,082	1,873
12	4,880	1,957	4,457	7,373	4,880	8,838	13,069	7,781	5,167	2,583	2,583	1,873
13	2,636	2,055	4,457	9,065	4,880	8,838	14,806	7,191	4,699	2,583	2,417	1,873
14	2,274	2,274	4,457	8,838	4,880	8,838	30,972	7,781	4,699	2,583	2,281	1,873
15	1,957	1,957	4,079	8,536	4,457	8,536	87,627	10,802	4,699	2,417	2,145	1,873
16	1,957	1,957	3,701	7,086	4,079	8,838	83,095	14,957	4,699	2,417	1,873	1,873
17	1,957	1,957	3,701	6,028	4,079	7,630	94,426	13,069	4,230	2,417	1,873	1,873
18	1,957	1,957	3,701	5,303	4,880	7,630	54,918	7,781	4,230	2,417	1,873	1,677
19	1,858	1,957	3,701	5,303	8,838	7,932	37,015	7,191	3,837	2,417	1,873	1,677
20	1,858	1,957	3,362	4,880	9,065	7,932	28,857	6,882	3,837	2,417	1,873	1,677
21	1,760	1,858	3,362	4,268	9,367	8,536	24,022	6,882	3,837	2,417	1,873	1,677
22	1,760	8,234	3,362	4,268	12,313	8,536	22,889	6,882	3,837	2,417	2,145	1,677
23	1,760	87,627	3,362	4,268	13,069	8,234	22,889	7,191	3,641	2,417	2,145	1,677
24	1,760	27,044	3,362	4,268	11,558	7,630	22,889	6,882	3,248	2,417	2,009	1,677
25	1,760	89,893	3,210	4,079	10,425	8,234	22,360	6,882	3,248	2,281	2,009	1,677
26	2,516	39,734	3,210	3,701	10,425	11,558	22,360	6,572	2,916	2,281	1,873	1,677
27	8,234	26,439	3,210	3,701	10,425	14,353	21,227	6,338	2,916	2,281	1,873	1,677
28	8,234	21,227	3,210	3,513	10,425	16,166	16,468	6,338	2,916	2,281	1,873	1,677
29	7,086	13,069	3,210	3,513		13,899	16,090	5,870	2,916	2,145	1,873	1,677
30	5,771	11,558	3,059	3,513		25,835	16,090	5,635	2,916	2,145	2,009	1,677
31	3,701		2,908	3,513		37,015		5,401		2,009	2,281	
AVG. (m^3/s)	2,760	12,343	6,842	4,488	6,958	10,700	28,811	9,247	4,287	2,498	2,304	1,943

1972 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,677	1,737	4,230	3,445	2,750	6,285	8,234	103,491	5,771	4,880	3,059	4,457
2	1,677	1,873	4,230	3,445	2,750	6,285	8,234	64,361	5,771	4,668	2,757	3,210
3	1,677	1,873	4,034	3,445	3,082	6,028	8,234	53,936	5,514	4,268	2,636	2,636
4	1,677	1,873	3,641	3,445	3,248	6,028	8,234	37,921	5,514	4,268	2,636	2,516
5	1,617	1,873	3,082	3,641	2,750	6,028	8,234	32,483	5,514	4,668	2,636	2,395
6	1,617	1,873	3,082	3,248	2,750	6,028	8,234	24,022	5,303	5,771	2,636	2,395
7	1,617	1,873	2,750	3,248	2,750	6,028	7,932	22,360	5,303	3,890	2,516	2,516
8	1,617	1,873	2,750	3,248	2,750	6,542	7,932	18,507	5,303	2,757	2,516	2,516
9	1,617	1,873	2,750	3,248	2,750	8,536	9,065	17,979	6,799	2,908	2,516	2,516
10	1,617	1,873	2,750	2,916	2,750	8,838	13,069	17,072	9,367	3,362	2,516	2,274
11	1,677	1,873	2,750	2,916	3,082	9,669	16,166	16,166	9,367	3,362	2,516	2,274
12	1,677	1,873	3,445	2,916	3,082	9,669	14,353	15,259	8,536	3,210	2,516	2,274
13	1,677	1,873	5,870	2,916	3,837	8,838	11,935	14,806	7,932	3,210	2,516	2,516
14	1,677	1,873	6,104	2,916	7,932	8,536	11,558	14,353	7,932	3,210	2,757	2,636
15	1,677	1,873	5,167	2,916	13,899	24,626	17,979	10,047	7,630	3,059	3,513	2,516
16	1,677	1,873	3,837	2,916	15,712	31,727	27,648	9,669	7,630	3,059	3,890	2,516
17	1,677	1,873	3,641	2,916	10,047	19,641	22,360	9,065	7,086	2,908	3,701	2,395
18	1,677	2,009	3,445	2,916	9,669	18,507	17,072	8,234	5,771	3,059	3,362	2,395
19	1,677	2,009	3,082	2,916	9,065	13,069	14,353	7,630	8,536	3,059	3,210	2,274
20	1,737	2,281	3,082	3,082	8,234	12,313	15,712	7,630	17,979	3,059	2,908	2,274
21	1,677	5,870	3,082	3,082	7,630	10,425	17,525	7,630	9,065	3,059	2,757	2,274
22	1,677	16,166	3,082	3,082	6,799	9,669	17,072	7,373	8,536	3,059	2,516	2,274
23	1,677	5,167	3,445	3,082	6,285	9,669	18,507	7,373	8,838	3,059	2,516	2,274
24	1,677	4,230	3,445	3,082	6,285	9,669	13,446	7,086	6,028	2,757	2,395	2,274
25	1,737	3,641	3,445	3,082	6,285	9,367	11,935	6,799	5,514	2,757	2,395	2,274
26	1,737	3,641	3,445	2,916	6,285	8,234	9,065	6,799	5,303	2,757	2,395	2,274
27	1,737	3,641	3,445	2,916	6,285	8,234	8,838	6,542	4,457	2,757	2,274	2,395
28	1,737	3,641	3,445	2,750	6,285	7,932	10,047	6,285	4,457	2,757	2,274	2,395
29	1,737	3,837	3,445	2,750	6,285	8,234	17,072	6,028	4,668	2,757	2,395	2,274
30	1,737	4,230	3,445	2,750		8,234	88,383	5,771	5,091	2,757	2,395	2,274
31	1,737		3,445	2,750		8,234		5,771		2,908	2,908	
AVG. (m^3/s)	1,681	3,069	3,577	3,061	5,907	10,359	15,614	18,660	7,017	3,355	2,727	2,483

1973 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	2,145	2,009	2,009	1,677	2,009	7,705	7,705	8,309	5,628	2,138	1,209	0,869
2	2,009	2,009	2,009	1,737	1,873	8,687	7,418	7,705	4,623	2,002	1,435	0,869
3	2,009	2,145	1,873	1,737	1,873	9,065	7,418	7,705	3,973	1,526	1,435	0,982
4	1,873	1,873	1,873	1,737	2,009	8,309	6,519	7,418	3,973	1,420	1,322	0,982
5	1,873	1,873	1,873	1,737	2,009	7,418	6,519	7,418	3,611	1,420	1,209	1,095
6	1,873	1,873	1,873	1,677	1,873	7,705	6,225	7,116	3,248	1,209	1,209	1,209
7	1,873	1,873	1,873	1,677	1,873	10,500	5,922	6,821	3,248	1,314	1,095	1,209
8	1,873	1,873	1,873	1,677	1,873	11,256	5,922	6,225	3,082	1,209	1,095	1,737
9	1,873	1,873	1,873	1,677	1,873	9,443	5,922	6,225	3,082	1,632	1,095	3,248
10	1,873	1,873	1,873	1,677	1,677	9,443	5,326	5,628	2,908	1,632	1,095	1,586
11	1,873	1,873	1,873	1,677	1,677	8,687	5,628	5,628	2,908	1,632	0,982	1,322
12	1,873	1,873	1,873	1,677	1,677	8,007	6,821	5,628	4,155	2,002	1,095	1,209
13	1,873	1,873	1,737	1,677	1,677	7,418	6,519	5,326	6,821	3,082	1,095	1,209
14	2,009	1,873	1,737	1,677	2,009	7,116	6,225	6,225	3,082	8,083	0,982	1,095
15	2,009	2,009	1,737	1,677	2,583	7,418	5,922	7,418	3,611	3,037	0,982	1,095
16	1,873	2,009	1,737	1,677	2,417	10,500	5,326	7,418	6,519	2,191	1,095	1,209
17	1,873	2,009	1,737	1,677	2,417	9,443	5,628	6,821	3,973	2,040	1,322	1,209
18	2,145	2,009	1,737	1,677	2,281	8,309	5,628	5,326	3,792	1,586	1,209	1,322
19	2,281	2,009	1,737	1,677	2,417	8,007	4,623	3,973	3,973	1,435	1,209	1,322
20	2,145	1,873	1,737	1,677	2,417	6,821	7,705	3,973	3,973	1,322	1,209	1,209
21	2,145	1,873	1,737	1,677	2,417	6,519	16,166	3,792	3,611	1,322	1,095	1,209
22	2,145	1,873	1,677	1,677	2,417	5,922	5,922	3,430	3,248	1,322	1,095	1,209
23	2,145	1,873	1,677	1,677	2,417	5,326	5,326	3,248	3,248	1,095	0,982	1,095
24	2,009	1,873	1,677	1,677	2,583	5,628	4,857	3,430	3,082	0,718	0,982	1,209
25	2,009	2,009	1,677	1,677	3,248	6,519	4,389	3,430	2,908	1,095	0,982	1,095
26	2,145	2,009	1,677	1,677	6,882	6,821	5,326	3,430	2,568	1,209	0,982	1,095
27	2,281	2,009	1,677	1,677	105,757	6,519	9,443	3,248	2,402	1,322	0,982	0,982
28	2,145	2,009	1,677	1,737	47,062	6,519	10,878	4,623	2,266	1,209	0,793	0,982
29	2,145	2,009	1,677	1,737		6,225	9,820	12,464	2,266	1,095	0,793	1,209
30	2,145	2,009	1,677	2,009		5,922	8,309	12,917	2,138	1,095	0,793	1,209
31	2,009		1,677	2,281		6,225		6,821		0,982	0,793	
AVG. (m^3/s)	2,018	1,941	1,779	1,719	7,618	7,723	6,845	6,101	3,597	1,754	1,086	1,243

1974 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,209	1,209	2,040	1,737	1,586	10,953	7,554	3,890	2,493	0,650	0,914	1,700
2	1,209	1,209	2,191	1,737	1,435	16,846	7,259	3,890	2,493	0,914	0,914	1,579
3	1,095	1,209	2,402	1,889	1,435	17,903	7,932	4,344	2,493	0,914	1,005	1,700
4	1,095	1,209	2,402	1,737	1,435	14,730	7,932	4,570	2,682	1,095	1,005	1,337
5	0,982	1,209	2,402	1,586	1,586	11,482	7,259	4,117	2,682	1,337	1,005	1,095
6	0,982	1,209	2,614	1,586	1,586	9,669	6,663	3,890	2,871	1,458	1,095	1,216
7	1,095	1,209	3,037	1,586	1,435	7,275	5,764	3,890	2,682	1,458	1,095	1,579
8	1,209	1,209	2,825	1,586	1,586	6,481	6,066	3,890	2,682	1,458	1,095	1,579
9	1,209	1,209	2,614	1,737	1,586	6,481	6,663	3,664	2,493	1,337	1,095	1,579
10	1,209	1,209	2,402	1,586	1,586	6,081	6,957	3,664	2,493	1,337	1,095	1,700
11	1,095	1,209	1,586	1,586	2,402	6,081	6,957	3,890	2,493	1,337	1,095	1,579
12	1,095	1,209	1,586	1,586	2,614	6,081	6,957	6,663	2,334	1,458	1,095	1,579
13	1,095	1,209	1,586	1,737	2,402	6,874	6,361	5,469	2,334	1,458	1,095	1,458
14	0,982	1,209	1,737	1,586	2,402	30,292	6,361	4,570	2,493	1,337	1,216	1,458
15	0,982	1,209	1,889	1,586	2,040	79,318	6,361	4,570	2,334	1,337	1,700	1,095
16	1,095	1,322	2,040	1,586	2,191	53,936	6,663	4,872	2,334	1,095	1,579	1,095
17	1,095	1,322	2,825	1,435	2,191	42,907	6,663	4,570	2,176	1,095	1,337	1,095
18	1,209	1,586	4,102	1,435	2,040	50,461	6,663	4,344	2,176	1,095	1,337	1,095
19	1,209	1,586	3,535	1,737	2,191	24,551	6,663	4,344	2,334	1,095	1,216	1,095
20	1,322	1,586	2,402	2,040	2,191	14,277	6,361	3,437	2,176	1,095	1,458	1,095
21	1,322	1,586	2,191	2,191	2,191	12,993	6,361	2,017	1,858	1,095	1,458	1,005
22	1,322	1,435	2,191	1,889	2,191	12,162	6,663	2,176	1,579	1,095	1,579	1,005
23	1,322	1,586	2,191	1,737	2,191	12,993	6,066	3,664	1,458	1,095	1,579	1,005
24	1,322	1,737	2,191	1,889	3,037	13,824	6,361	3,664	1,216	1,005	1,458	1,005
25	1,209	1,737	2,040	1,586	7,275	15,486	6,066	3,248	1,095	1,005	1,458	1,005
26	1,209	1,586	2,040	1,737	10,953	14,655	4,872	3,248	1,095	0,914	1,700	1,216
27	1,209	1,889	1,889	1,737	13,824	12,162	4,344	2,871	1,005	0,914	2,017	2,017
28	1,209	2,040	1,889	1,737	14,277	10,198	4,344	2,493	0,582	0,914	2,017	1,579
29	1,209	2,040	1,889	1,889		8,687	3,890	2,334	0,582	0,914	2,176	1,579
30	1,209	2,191	1,889	1,737		7,932	3,890	2,493	0,582	0,914	1,858	1,579
31	1,322		1,737	1,737		7,932		2,493		0,914	1,579	
AVG. (m^3/s)	1,172	1,445	2,269	1,708	3,352	17,797	6,297	3,782	2,010	1,134	1,365	1,357

1975 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,458	2,017	2,017	8,309	22,511	16,015	19,943	47,968	11,407	4,699	2,546	1,949
2	1,095	1,700	2,871	8,687	17,979	14,655	24,022	35,655	10,727	4,230	2,372	1,949
3	1,095	1,700	2,493	8,687	12,993	14,655	24,551	32,256	10,425	4,034	2,372	1,805
4	1,216	1,579	2,682	8,687	11,784	14,277	23,493	32,860	10,047	4,034	2,372	1,805
5	1,216	1,579	3,059	8,687	11,331	13,824	22,511	28,026	10,047	4,034	2,372	1,805
6	1,216	1,579	3,059	8,309	12,993	14,277	22,511	26,817	9,745	3,837	2,372	1,805
7	1,337	1,579	4,570	8,309	13,446	14,655	21,982	25,306	9,140	3,837	2,372	1,805
8	1,337	1,579	9,820	7,932	13,824	14,655	20,925	21,756	8,461	3,837	2,372	1,949
9	1,095	1,579	8,309	104,246	13,446	14,655	18,432	19,943	8,158	3,837	2,372	1,949
10	1,095	1,579	18,961	118,599	11,331	14,277	17,979	18,961	7,856	3,641	2,372	1,805
11	1,337	1,579	52,199	30,292	10,576	14,277	17,979	18,961	7,275	3,837	2,372	1,805
12	1,458	1,579	18,432	20,396	8,687	14,277	17,450	20,396	7,275	3,641	2,372	1,662
13	1,337	1,700	11,331	18,961	8,687	14,655	16,015	22,285	6,980	3,641	2,372	1,662
14	1,337	1,579	10,198	17,979	8,309	14,655	15,486	21,756	6,980	3,641	2,372	1,662
15	1,337	1,579	34,144	13,824	8,309	16,015	15,108	28,630	6,980	3,445	2,085	1,662
16	1,337	1,700	36,184	11,784	8,309	19,943	13,824	55,220	6,980	2,719	1,805	1,662
17	1,216	1,700	28,554	11,784	8,309	19,414	54,767	32,860	6,429	2,546	1,073	1,662
18	1,216	1,458	25,080	10,576	8,309	16,468	122,376	24,324	6,172	2,546	1,073	1,662
19	1,005	1,458	24,551	8,309	8,309	15,486	82,339	21,756	5,658	2,719	1,307	1,541
20	1,095	1,458	28,554	8,309	8,687	16,468	52,501	18,961	5,915	2,901	1,949	1,541
21	1,095	1,458	27,346	8,309	10,576	18,432	42,227	18,507	5,401	2,719	1,949	1,541
22	1,095	1,458	23,040	8,309	11,331	17,450	33,540	18,054	4,933	3,248	1,949	2,085
23	1,216	1,458	18,961	8,309	13,446	21,982	29,839	18,054	4,933	3,075	1,949	3,837
24	1,216	1,458	15,486	8,309	15,108	28,554	23,795	16,770	5,915	2,719	1,949	3,641
25	1,095	1,458	13,824	7,932	14,277	23,040	21,756	14,428	9,443	2,719	1,949	3,248
26	1,216	1,579	12,615	7,554	13,824	23,493	21,756	13,975	6,980	2,719	1,949	2,901
27	2,176	1,579	11,331	7,554	16,997	16,015	23,267	13,597	6,172	2,719	1,949	2,546
28	6,066	1,458	11,784	7,554	16,997	15,486	79,318	12,842	4,933	2,719	1,949	2,372
29	4,344	1,458	11,331	7,932		15,108	163,923	12,162	4,933	2,719	1,949	2,372
30	2,871	1,579	9,065	12,615		14,277	81,584	11,784	4,699	2,546	1,949	2,228
31	2,176		8,687	27,950		15,486		11,407		2,546	1,949	
AVG. (m^3/s)	1,594	1,573	15,824	17,903	12,167	16,675	38,173	23,106	7,367	3,294	2,068	2,064

1976 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,692	1,692	4,835	3,777	6,028	4,041	13,371	17,299	13,069	3,611	2,228	1,957
2	1,692	1,692	4,570	4,041	5,409	4,041	12,917	13,975	11,784	3,414	2,228	1,957
3	1,692	1,692	4,570	4,041	6,028	3,777	13,371	13,975	10,651	3,414	2,228	1,957
4	1,692	1,692	4,570	4,041	8,612	3,777	16,392	13,522	9,594	3,218	2,387	1,957
5	1,692	1,692	4,570	4,041	10,500	3,777	13,371	13,975	9,594	3,022	2,387	1,957
6	1,828	1,692	4,570	3,777	9,745	3,777	12,389	13,975	8,914	2,863	2,387	1,957
7	1,828	1,692	4,835	3,777	10,122	3,777	11,482	13,522	8,234	2,863	2,387	1,957
8	1,828	1,692	4,835	3,777	10,122	3,777	10,500	13,522	7,554	2,863	2,387	1,957
9	1,828	1,692	4,835	3,777	10,122	3,777	9,745	13,522	8,536	2,863	2,387	1,957
10	1,828	1,692	4,835	3,777	10,122	4,041	9,745	8,536	8,234	2,863	2,228	1,957
11	1,828	1,692	4,306	4,041	10,122	5,099	10,500	9,971	7,856	3,022	2,228	1,957
12	1,692	1,692	3,777	3,777	9,745	5,099	17,525	16,241	7,856	4,230	2,092	1,957
13	1,692	1,692	3,120	2,901	7,781	5,409	26,892	15,259	7,554	4,457	2,092	1,957
14	1,828	1,828	2,168	2,901	6,648	5,409	29,008	11,331	6,678	3,611	2,092	1,957
15	1,828	1,692	2,002	3,339	6,028	5,409	36,411	9,216	6,134	3,611	2,092	1,821
16	1,828	1,692	2,002	3,777	5,718	5,718	53,105	8,914	5,635	3,611	2,092	1,821
17	1,828	1,828	1,828	4,835	5,409	6,270	29,008	8,536	5,635	3,218	2,092	1,957
18	1,828	1,692	1,828	10,953	4,835	7,781	24,249	8,914	5,635	3,022	2,092	1,957
19	1,828	1,692	1,828	13,824	4,835	8,612	18,810	11,331	5,386	2,863	2,092	2,228
20	1,828	1,692	2,508	10,500	4,570	9,367	16,241	14,806	5,386	2,704	1,957	2,704
21	1,828	1,692	5,718	8,989	4,306	9,745	15,259	17,299	5,386	2,387	1,957	3,022
22	1,828	1,828	6,028	10,953	4,306	10,122	15,712	22,889	5,137	2,387	2,387	3,218
23	1,828	2,002	4,570	16,997	4,835	9,367	25,608	33,313	5,885	2,387	3,611	3,022
24	1,692	2,682	4,570	10,122	4,835	8,989	26,213	19,338	5,635	2,387	2,863	3,218
25	1,692	4,306	4,570	10,122	4,835	8,612	22,285	17,299	5,137	2,387	2,546	3,414
26	1,828	4,570	3,777	10,122	4,570	8,612	18,810	16,770	4,910	2,387	2,228	3,611
27	1,828	4,570	3,777	10,122	4,041	10,122	17,299	15,712	4,910	2,387	2,228	3,414
28	1,692	4,570	4,041	8,612	4,041	10,122	17,828	15,259	4,457	2,387	2,092	2,704
29	1,692	4,835	4,041	7,781	2,531	10,500	24,249	16,770	3,807	2,387	2,092	2,546
30	1,692	4,835	3,777	7,781		11,935	19,867	15,712	3,807	2,228	1,957	1,957
31	1,692		3,777	7,033		12,917		13,975		2,228	1,957	
AVG. (m^3/s)	1,771	2,333	3,904	6,720	6,579	6,896	19,605	14,667	6,966	2,945	2,260	2,334

1977 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	2,387	4,910	23,569	13,522	8,536	16,241	13,975	22,285	7,214	3,437	2,115	1,707
2	1,957	4,004	20,396	13,522	10,953	22,285	15,259	21,605	7,554	3,437	1,972	1,707
3	1,957	3,807	20,925	11,331	12,615	19,338	16,770	21,605	7,214	3,875	1,972	1,828
4	1,957	3,611	26,213	10,953	13,975	18,810	16,770	20,925	6,927	3,875	1,828	2,410
5	1,821	3,218	23,569	10,274	19,867	18,356	16,770	19,792	6,353	3,263	1,828	1,828
6	1,957	3,022	20,396	9,216	27,572	17,299	16,241	20,396	5,779	3,082	1,828	1,828
7	1,957	3,022	17,299	8,536	24,928	15,712	15,712	19,263	5,779	3,263	1,828	1,828
8	1,957	3,022	15,712	8,234	20,396	14,806	15,259	18,130	5,779	3,263	1,828	2,266
9	1,821	2,863	14,806	7,856	16,770	13,975	13,069	15,864	5,530	3,263	1,828	3,263
10	1,821	2,863	11,784	7,554	16,241	13,069	11,784	15,864	5,280	3,263	1,972	2,553
11	1,821	2,704	12,615	7,267	17,299	12,615	10,274	15,864	5,280	3,082	1,972	2,553
12	1,821	2,704	16,770	7,267	17,299	11,784	9,594	14,806	5,280	2,727	1,828	2,266
13	1,821	2,704	20,396	6,972	18,356	11,331	12,615	13,069	5,280	5,031	1,828	1,828
14	1,821	2,546	24,928	6,972	21,605	10,953	18,356	14,353	5,280	4,313	1,828	1,828
15	1,821	2,546	18,810	6,972	21,605	11,331	17,828	20,925	5,031	3,082	1,828	1,828
16	2,092	2,546	15,712	7,267	21,605	11,784	15,712	20,925	4,782	2,553	1,828	1,972
17	2,092	2,546	13,522	7,554	21,605	14,428	14,806	13,899	5,031	2,410	1,828	2,266
18	2,092	2,546	12,615	10,953	22,889	15,712	13,975	13,069	5,530	2,410	1,828	1,972
19	2,863	2,387	11,331	20,396	22,889	14,428	12,615	13,069	5,779	2,410	1,828	1,972
20	5,635	2,387	10,953	16,241	19,338	13,522	12,238	12,615	5,530	2,266	1,707	1,707
21	5,137	2,092	9,594	11,331	17,299	11,784	12,238	12,162	5,031	2,266	1,707	1,707
22	4,004	2,092	8,914	9,971	15,712	12,615	15,712	10,802	4,532	2,266	1,828	1,707
23	4,684	6,678	8,536	9,594	14,428	12,615	98,958	10,425	4,532	2,266	1,828	1,707
24	19,867	40,565	8,536	8,914	13,522	12,615	58,015	10,425	4,313	2,266	1,828	1,707
25	31,198	19,338	8,234	8,234	13,522	13,069	48,497	10,425	4,094	2,115	1,828	1,707
26	19,867	13,975	7,856	7,856	13,975	12,238	46,684	10,425	3,875	2,115	1,707	1,828
27	8,536	24,928	7,856	7,856	13,522	11,331	25,608	10,425	3,875	2,115	1,707	1,828
28	6,972	30,443	10,651	8,234	13,522	11,331	26,213	9,745	3,437	2,115	1,707	1,828
29	6,134	24,249	20,925	8,234		12,238	30,443	8,309	3,437	2,115	1,707	1,828
30	5,635	31,198	17,828	8,234		12,238	25,608	7,554	3,437	2,115	1,707	1,828
31	5,137		15,259	7,856		12,615		7,554		2,115	1,707	
AVG. (m^3/s)	5,182	8,517	15,371	9,522	17,566	13,951	22,587	14,728	5,226	2,844	1,825	1,970

1978 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,707	1,828	1,707	24,249	11,331	13,522	28,328	22,889	8,536	3,218	2,546	1,685
2	1,707	1,828	1,972	68,289	10,274	13,069	26,213	20,396	6,678	3,022	2,387	1,685
3	1,707	1,828	3,082	29,008	9,594	13,069	25,608	22,889	6,134	3,022	1,957	1,685
4	1,707	1,828	4,532	30,443	12,615	13,069	23,569	20,925	5,885	3,022	1,957	1,685
5	1,707	1,828	4,313	17,828	15,259	13,522	23,569	19,867	5,635	2,863	1,957	1,685
6	1,707	1,828	2,727	16,770	20,396	17,299	24,928	18,356	5,635	2,863	1,821	1,685
7	1,707	1,828	2,553	21,605	40,565	18,356	27,572	16,770	5,386	2,546	1,821	1,685
8	1,707	1,707	2,410	27,648	35,580	17,828	29,008	14,428	5,386	2,546	1,821	1,685
9	1,828	1,707	2,410	19,338	51,217	17,299	28,328	14,806	5,386	2,387	1,685	1,685
10	1,828	1,707	2,266	15,712	27,572	16,770	29,763	14,428	5,137	2,228	1,685	1,685
11	1,828	1,707	2,115	13,069	21,605	17,828	23,569	13,522	5,137	2,228	1,685	1,685
12	1,828	1,707	2,115	12,615	20,925	17,828	20,396	13,522	5,137	2,228	1,821	1,685
13	1,828	1,707	2,115	10,953	19,867	25,608	18,810	13,069	5,137	2,228	1,821	1,685
14	1,828	1,707	2,115	10,651	18,810	19,338	18,356	12,615	4,684	2,228	1,821	1,685
15	1,828	1,707	2,115	10,274	18,356	14,806	16,241	12,238	4,684	2,228	1,821	1,685
16	6,640	1,707	2,115	8,536	18,810	13,522	15,259	12,238	4,684	2,228	1,821	1,685
17	4,094	1,707	2,115	8,234	19,338	13,069	16,770	12,238	4,684	2,228	1,821	1,685
18	2,410	1,707	2,266	7,856	18,810	11,784	19,338	11,784	4,457	2,228	1,821	1,685
19	2,266	1,707	2,266	7,856	21,605	11,784	19,338	11,331	4,457	2,228	1,821	1,685
20	2,266	1,828	2,553	10,651	20,396	11,784	16,241	10,274	4,457	2,228	1,685	1,685
21	2,266	1,828	3,082	17,828	32,634	11,331	15,712	9,594	4,457	2,228	1,685	1,685
22	2,266	1,828	3,437	16,241	22,889	13,975	17,828	9,216	3,807	2,228	1,685	1,685
23	2,115	1,707	3,263	15,712	18,810	83,095	49,404	8,536	3,807	2,092	1,685	1,685
24	2,115	1,707	3,082	14,806	16,241	39,734	52,123	8,536	3,611	2,092	1,685	1,685
25	1,828	1,707	2,908	23,569	15,259	26,892	32,634	8,914	3,218	2,092	1,685	1,685
26	1,828	1,707	2,727	20,396	14,428	26,213	26,892	8,536	3,218	2,092	1,685	1,685
27	1,828	1,707	2,553	16,770	13,975	25,608	23,569	8,536	3,218	2,092	1,685	1,685
28	1,828	1,707	2,553	15,259	13,522	21,605	24,249	8,536	3,218	2,092	1,685	1,549
29	1,828	1,707	2,553	13,069		27,572	23,569	8,536	3,218	1,957	1,685	1,549
30	1,828	1,707	2,727	12,615		43,965	22,889	8,536	3,218	1,957	1,685	1,549
31	1,828		4,094	12,238		35,580		9,216		1,957	1,685	
AVG. (m^3/s)	2,119	1,747	2,672	17,745	20,739	21,507	24,669	13,073	4,744	2,351	1,810	1,671

1979 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,549	13,975	35,580	6,678	12,389	7,630	6,723	7,630	7,932	3,316	2,432	1,337
2	1,549	9,216	8,536	32,634	21,454	7,630	7,630	7,327	7,932	3,701	2,432	1,337
3	1,549	7,267	7,267	85,361	16,392	7,327	8,914	7,025	7,630	3,701	2,432	1,337
4	1,549	5,885	5,137	54,087	14,126	7,025	9,216	7,025	7,932	3,316	2,432	1,337
5	1,549	5,137	4,910	26,892	13,673	7,025	7,932	6,723	9,216	3,316	2,432	1,337
6	1,549	5,885	5,386	19,867	12,842	7,025	7,025	6,723	9,594	3,316	2,432	1,337
7	1,685	5,635	19,867	17,299	11,633	7,932	6,723	6,119	7,630	3,316	1,964	1,337
8	1,685	4,004	35,580	15,033	12,842	7,630	6,421	5,862	7,025	3,316	1,964	1,239
9	1,685	3,807	18,356	13,220	16,392	7,327	6,119	5,862	6,119	3,316	1,964	1,239
10	1,685	3,807	13,069	11,633	15,939	6,723	6,119	5,862	5,348	3,316	1,964	1,337
11	1,685	3,611	12,615	10,425	14,579	6,421	5,605	5,605	5,348	3,316	1,964	1,337
12	1,685	3,611	12,615	9,594	13,220	6,723	5,348	5,348	5,348	2,432	1,836	1,337
13	1,685	3,611	12,238	8,234	13,673	8,612	6,119	5,091	5,348	2,432	1,836	1,337
14	1,685	3,218	6,972	8,234	13,220	8,234	12,011	5,091	5,348	2,432	1,836	1,337
15	1,685	3,218	6,678	8,234	13,220	8,234	8,914	5,091	5,091	2,432	1,836	1,337
16	1,685	3,218	6,383	9,594	15,033	8,234	7,025	7,932	4,835	2,432	1,836	1,465
17	1,685	3,218	6,383	15,939	13,673	8,914	7,630	33,540	4,608	2,432	1,836	1,465
18	1,685	3,218	5,885	15,939	13,220	8,914	7,025	13,673	4,608	2,432	1,586	1,337
19	1,685	3,218	5,635	22,511	12,842	10,802	7,025	7,630	3,701	2,432	1,586	1,337
20	1,685	3,022	5,386	28,857	12,011	10,802	10,047	6,723	3,701	2,432	1,586	1,337
21	1,685	3,022	5,386	19,867	10,047	10,047	9,216	6,723	3,701	2,432	1,465	1,337
22	2,228	2,704	5,137	17,752	9,594	10,425	9,594	6,119	3,701	2,432	1,337	1,337
23	3,414	2,704	5,137	15,486	9,216	10,425	9,216	7,025	3,701	2,432	1,337	1,239
24	2,863	2,546	5,137	13,673	8,914	10,425	13,673	7,025	3,701	2,432	1,337	1,239
25	2,704	2,546	5,386	12,011	8,914	10,047	12,389	7,327	3,701	2,274	1,337	1,239
26	3,611	2,546	8,536	11,633	7,932	8,234	10,047	7,327	4,608	2,274	1,337	1,239
27	15,259	2,546	8,536	10,802	7,630	8,234	8,914	6,723	4,155	2,274	1,337	1,239
28	10,651	2,546	7,856	10,802	7,630	7,932	8,234	5,862	3,701	2,274	1,337	1,239
29	9,594	2,546	7,856	10,802		6,421	8,234	5,862	13,220	2,274	1,337	1,239
30	101,980	4,457	6,972	10,802		6,119	7,932	7,025	5,605	2,274	1,337	1,239
31	27,572		6,972	10,802		6,119		7,327		2,274	1,337	
AVG. (m^3/s)	6,918	4,198	9,916	18,216	12,580	8,180	8,234	7,620	5,803	2,735	1,775	1,313

1980 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,375	1,722	4,797	7,388	8,989	29,688	52,123	13,975	8,234	4,381	2,546	2,092
2	1,375	2,145	5,061	7,705	8,687	19,187	56,958	18,130	8,234	4,381	2,546	2,092
3	1,375	2,568	5,061	8,989	8,687	15,184	100,469	27,195	7,403	4,177	2,546	2,092
4	1,375	5,061	5,061	24,551	8,007	14,051	72,368	31,500	7,403	4,177	2,342	2,092
5	1,375	4,268	5,061	47,893	8,007	12,162	64,663	22,436	6,497	3,769	2,221	2,221
6	1,375	3,505	5,061	32,256	7,705	11,407	48,724	18,130	6,194	3,566	2,221	1,972
7	1,375	16,997	5,061	24,097	7,705	11,029	43,058	18,810	6,194	3,362	2,221	2,221
8	1,375	23,569	4,797	24,097	7,388	9,669	39,130	18,810	5,892	3,158	2,092	2,342
9	1,511	8,007	4,797	27,950	6,768	12,162	35,202	18,130	5,892	3,158	2,092	2,342
10	1,511	8,007	5,341	22,133	6,768	12,162	33,238	17,374	5,590	3,158	1,972	1,972
11	1,511	7,705	4,532	17,450	6,768	14,428	31,500	18,810	5,590	3,158	1,972	1,972
12	1,511	7,705	4,797	17,450	6,768	26,817	29,763	21,000	5,590	2,750	1,972	1,972
13	1,375	7,388	58,997	16,543	8,989	22,133	28,026	23,115	5,590	2,546	1,972	1,972
14	1,375	3,739	89,138	14,051	29,688	22,587	29,763	40,112	5,590	2,546	1,843	1,972
15	1,511	3,271	23,115	12,917	29,083	19,187	23,871	26,288	5,288	2,546	1,843	1,972
16	1,375	3,271	16,090	11,029	23,569	15,637	19,338	21,000	5,288	2,546	1,843	1,972
17	1,375	3,271	19,641	10,727	33,616	16,997	22,436	20,245	5,288	2,546	1,843	1,972
18	1,511	3,271	29,083	10,047	36,335	19,187	19,338	18,130	5,288	2,546	1,722	1,972
19	1,511	3,271	19,187	9,669	24,097	17,450	18,130	16,241	4,986	2,546	1,722	1,972
20	1,511	3,271	17,450	11,407	16,997	16,543	17,374	15,108	5,288	2,546	1,722	1,972
21	1,511	3,271	16,997	8,989	14,051	16,090	14,579	14,579	5,288	2,546	1,722	1,843
22	1,511	2,568	16,543	8,687	8,989	14,806	21,000	14,579	4,986	2,546	1,722	1,843
23	1,511	2,357	15,637	8,309	7,599	14,806	18,810	12,313	4,684	2,546	1,722	1,843
24	24,551	2,568	14,806	8,309	7,705	13,673	17,374	11,256	4,684	2,546	1,722	1,843
25	3,037	2,803	10,047	8,309	7,388	41,547	20,245	10,878	4,684	2,546	2,092	1,843
26	1,722	2,568	8,309	8,989	7,388	39,281	18,810	10,425	4,684	2,546	2,092	1,843
27	1,934	3,271	7,705	12,162	10,047	112,556	17,374	9,971	4,684	2,546	2,092	1,843
28	1,722	3,739	7,078	38,526	12,917	260,615	16,846	9,971	4,684	2,546	2,092	1,843
29	1,511	4,532	6,768	18,734	24,551	142,772	13,975	9,140	4,381	2,546	2,092	1,843
30	1,511	4,532	6,768	14,051		88,383	12,842	8,687	4,177	2,546	2,092	1,843
31	1,511		7,078	10,727		64,663		8,687		2,546	2,092	
AVG. (m^3/s)	2,278	5,141	14,512	16,263	13,630	36,995	31,911	17,581	5,609	2,954	2,025	1,986

1981 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,843	1,594	3,362	4,177	40,112	52,123	20,623	20,623	9,216	6,693	2,969	2,470
2	1,843	1,594	3,362	3,973	31,500	52,123	20,018	20,018	9,594	5,968	2,969	2,304
3	1,843	1,722	3,362	3,973	28,026	47,591	19,338	20,018	9,594	5,718	2,969	2,304
4	1,843	1,843	3,362	4,684	25,457	48,724	18,734	20,018	11,482	5,469	2,969	2,304
5	1,843	1,843	3,566	4,684	105,002	44,191	17,525	20,018	8,158	4,971	2,969	2,470
6	1,843	1,843	4,986	120,110	76,296	41,094	16,846	20,018	7,781	4,721	2,969	2,636
7	1,843	1,722	3,973	64,663	41,094	40,112	16,846	19,338	7,781	4,721	2,969	2,636
8	1,843	1,722	3,566	94,426	33,238	38,148	16,846	25,080	7,781	4,472	2,969	2,636
9	1,843	1,843	3,566	36,184	25,457	38,148	16,846	16,846	7,781	4,472	2,969	2,470
10	1,843	1,843	4,381	35,202	23,871	38,148	16,846	24,400	7,781	16,241	2,803	2,636
11	1,843	1,843	4,177	25,457	21,680	45,324	16,846	19,338	7,781	7,418	2,636	2,636
12	1,843	1,972	3,769	18,810	20,245	63,379	16,846	14,957	7,781	4,971	2,636	2,636
13	1,843	2,092	3,362	15,712	21,680	77,807	16,846	13,899	7,781	4,472	2,636	2,636
14	1,843	2,092	3,566	13,975	21,680	86,872	17,525	13,899	7,781	4,223	2,304	2,636
15	1,843	2,092	3,362	12,313	21,680	80,073	18,130	13,899	7,781	4,223	1,798	2,636
16	1,843	2,092	3,566	15,108	24,551	49,101	18,130	13,899	8,838	4,223	1,798	2,636
17	1,843	2,221	3,566	42,076	23,115	44,871	19,338	13,899	7,781	3,973	1,798	2,636
18	1,843	3,362	3,362	33,238	23,871	44,871	19,338	13,899	7,781	2,636	1,798	2,636
19	1,843	3,769	3,362	32,407	31,500	57,033	18,130	13,899	7,781	2,470	1,798	2,470
20	1,843	3,362	3,566	71,084	100,469	63,152	19,338	13,899	7,781	2,470	1,964	2,470
21	1,722	6,194	3,566	60,810	62,094	65,645	19,338	13,899	7,781	2,803	2,130	2,470
22	1,722	4,684	3,769	40,112	56,958	60,659	20,018	13,899	7,781	3,142	1,798	2,470
23	1,594	3,973	3,769	33,238	54,389	32,558	21,378	13,899	7,781	3,142	1,798	2,470
24	1,594	3,566	3,769	30,670	52,123	31,652	22,889	14,353	7,418	3,142	2,470	2,470
25	1,594	3,362	3,566	20,245	52,123	31,652	24,400	13,899	7,056	3,142	2,636	2,470
26	1,594	3,158	3,973	18,130	46,458	30,745	25,835	14,353	7,056	3,142	2,470	2,470
27	1,594	3,158	6,799	18,130	43,058	26,590	25,080	12,917	7,056	3,142	2,470	2,470
28	1,594	3,158	5,590	150,326	49,857	24,400	20,623	10,047	7,056	3,142	2,470	2,470
29	1,722	3,158	4,381	109,534		24,400	20,623	9,594	7,056	2,969	2,470	2,470
30	1,722	3,158	4,381	157,880		24,400	20,623	9,594	7,056	2,969	2,470	2,470
31	1,722		4,381	62,094		23,644		9,594		2,969	2,470	
AVG. (m^3/s)	1,775	2,668	3,906	43,659	41,342	46,104	19,391	15,739	7,964	4,459	2,463	2,520

1982 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	2,546	1,843	3,769	21,151	6,149	5,666	12,464	10,198	9,292	2,886	4,986	2,886
2	2,546	1,972	3,769	19,036	5,892	5,666	12,842	10,198	8,989	3,067	4,563	3,067
3	2,546	2,092	4,177	15,788	5,666	5,666	13,220	10,576	8,989	3,067	3,973	3,241
4	2,342	2,092	4,684	11,331	5,439	5,892	13,597	10,576	8,687	3,241	3,777	3,596
5	2,546	2,092	4,381	8,385	5,439	5,892	14,882	10,953	8,385	3,241	3,422	3,973
6	2,546	2,092	3,769	7,479	5,439	5,892	13,975	10,953	8,083	3,241	3,067	3,973
7	2,546	2,221	3,566	7,479	5,212	5,892	13,597	10,953	7,479	3,241	2,735	4,170
8	2,546	2,342	3,362	7,479	5,212	5,892	15,335	10,953	6,920	3,422	2,432	4,170
9	2,342	2,342	3,158	7,479	4,986	5,892	15,788	10,953	6,406	3,596	2,432	3,973
10	2,221	2,342	3,158	7,479	4,986	6,149	15,335	11,331	6,149	3,596	2,281	3,777
11	2,221	2,546	3,158	7,479	4,986	6,149	14,882	11,331	5,666	3,777	2,130	3,422
12	2,221	2,546	3,566	7,479	4,986	6,149	14,882	11,331	5,439	3,777	2,130	3,067
13	1,972	2,546	3,973	7,479	4,986	6,406	14,428	11,331	5,212	3,973	2,130	2,886
14	1,972	2,546	4,177	7,479	4,986	6,406	14,428	10,953	4,986	3,973	1,881	2,735
15	1,972	2,546	5,288	6,920	5,212	6,406	13,975	12,087	4,563	3,973	1,881	2,583
16	1,972	2,750	110,289	6,920	5,212	6,663	13,597	12,464	4,170	3,973	1,881	2,583
17	1,972	2,750	56,504	6,920	4,986	6,920	13,220	11,709	3,973	4,170	1,881	2,432
18	1,972	2,954	42,832	6,406	4,986	6,920	12,842	11,331	3,777	4,170	1,760	2,130
19	1,972	2,954	42,832	6,406	5,212	7,479	12,464	10,953	3,596	3,973	1,760	2,009
20	1,972	3,158	42,001	5,892	5,212	7,781	12,087	12,087	3,596	4,170	1,760	2,009
21	2,092	3,158	42,001	5,666	5,212	8,083	12,087	11,709	3,422	4,170	1,632	2,009
22	2,092	3,362	42,001	5,666	4,986	8,385	11,709	10,953	3,422	4,170	1,511	2,009
23	2,092	3,362	42,832	5,666	4,986	8,385	11,709	10,198	3,422	4,366	1,632	2,009
24	2,092	3,566	43,663	5,212	5,212	8,687	11,709	10,198	3,422	4,366	1,760	1,881
25	2,092	3,566	53,483	5,212	5,212	9,292	11,331	10,576	3,422	4,366	1,760	1,881
26	2,092	3,566	114,066	5,212	5,439	9,594	11,331	10,953	3,241	4,366	1,760	1,881
27	1,972	3,769	81,584	5,212	5,439	10,198	10,953	10,576	3,241	4,366	1,881	1,881
28	2,092	3,769	61,792	5,212	5,439	10,576	11,331	10,198	3,241	4,563	2,009	2,009
29	2,221	3,566	42,832	5,439		10,953	11,331	10,198	3,241	4,563	2,432	2,009
30	2,092	3,566	27,421	5,892		11,709	10,576	9,896	3,067	12,842	2,583	1,881
31	1,972		23,267	6,149		12,087		9,896		7,781	2,735	
AVG. (m^3/s)	2,189	2,799	29,915	7,839	5,254	7,540	13,064	10,922	5,250	4,272	2,405	2,738

1983 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	2,009	2,009	2,130	1,881	4,986	7,705	24,324	12,464	12,842	3,596	2,130	1,632
2	2,009	2,009	2,130	1,881	4,986	7,705	23,644	12,087	8,385	3,596	2,009	1,632
3	2,009	2,009	2,130	1,881	3,747	10,500	22,360	12,087	7,479	3,422	2,009	1,632
4	2,009	2,009	2,009	1,881	4,449	9,669	21,227	11,709	7,176	3,067	2,130	1,632
5	2,009	2,009	2,009	1,881	5,288	9,669	21,756	11,709	6,663	3,067	2,281	1,632
6	2,009	2,009	2,009	1,881	8,461	9,292	21,907	11,331	7,176	3,067	2,432	1,632
7	2,130	2,009	2,009	1,881	6,572	8,083	25,684	11,709	8,687	3,067	2,583	1,760
8	2,009	1,881	2,009	1,881	5,288	7,327	29,839	14,428	7,781	2,886	2,583	1,760
9	2,009	1,881	2,009	1,881	4,986	6,572	25,004	13,220	6,920	2,886	2,583	1,760
10	2,009	1,881	2,009	1,881	4,986	6,950	25,004	10,198	6,920	2,886	2,583	1,760
11	2,009	1,881	2,009	1,881	8,083	7,327	25,608	9,896	6,920	2,886	2,583	1,760
12	2,009	1,881	1,881	1,881	11,482	9,669	26,213	9,594	6,920	2,886	2,583	1,760
13	2,009	1,881	1,881	1,881	8,461	10,953	22,738	9,594	6,920	2,886	2,583	1,632
14	2,886	1,881	1,881	1,881	10,953	16,694	21,151	10,576	5,892	2,886	2,432	1,632
15	3,241	1,881	1,881	1,881	12,842	17,148	21,151	10,576	5,212	2,886	2,281	1,632
16	3,596	1,881	1,881	1,881	15,184	17,148	21,151	8,989	5,892	2,886	2,281	1,632
17	3,241	1,881	1,881	47,137	14,730	17,752	23,795	8,989	5,892	2,432	2,130	1,632
18	3,067	1,881	1,881	44,493	16,166	18,885	24,400	8,687	5,439	2,432	2,130	1,632
19	2,886	2,009	1,881	6,572	15,712	19,414	23,267	11,709	5,439	2,432	2,130	1,632
20	2,583	2,009	1,881	5,892	13,295	25,684	18,507	10,576	5,439	2,130	2,130	1,632
21	2,281	2,009	1,881	5,892	9,292	35,580	17,148	12,464	5,439	2,130	2,130	1,632
22	2,281	2,009	1,881	5,892	8,838	25,684	16,241	10,576	5,439	2,130	2,130	1,632
23	1,881	2,009	1,881	5,590	13,295	22,360	15,788	10,198	5,439	2,130	2,130	1,632
24	1,881	2,130	1,881	4,986	16,166	19,414	15,788	10,198	4,986	2,130	2,130	1,632
25	1,881	2,130	1,881	4,986	17,752	17,752	15,788	9,896	4,563	2,130	2,130	1,632
26	1,881	2,130	2,009	4,986	12,389	20,018	15,788	9,594	4,563	2,130	1,881	1,632
27	1,881	2,130	1,881	4,986	9,292	21,227	15,335	8,385	4,563	2,130	1,760	1,632
28	1,881	2,130	1,881	4,684	8,083	24,324	14,428	8,083	4,366	2,130	1,632	1,632
29	1,881	2,130	2,009	4,684		29,159	13,975	7,479	3,777	2,130	1,632	1,632
30	2,009	2,130	1,881	4,684		32,709	12,842	7,781	3,596	2,130	1,632	1,632
31	2,009		1,881	4,684		27,723		9,594		2,130	1,632	
AVG. (m^3/s)	2,241	1,990	1,946	6,137	9,849	16,777	20,728	10,464	6,224	2,636	2,174	1,658

1984 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,632	2,281	231,910	4,918	16,619	10,576	14,882	12,691	6,829	2,999	3,142	1,775
2	1,632	2,130	73,728	5,114	17,072	10,878	13,975	13,597	6,829	3,142	2,757	1,866
3	1,760	2,130	31,425	4,918	16,619	11,633	13,975	17,072	10,878	3,278	2,757	1,866
4	1,881	2,130	19,943	4,918	16,166	14,428	14,428	15,335	7,343	2,757	2,757	1,685
5	1,881	2,130	14,882	5,114	15,788	13,597	14,428	13,597	5,514	2,629	2,757	1,586
6	1,881	2,583	13,144	5,114	15,788	13,597	14,882	11,935	5,114	2,629	2,757	1,586
7	1,881	2,281	16,619	5,114	23,493	14,882	15,335	11,935	4,918	2,629	2,757	1,586
8	1,881	2,281	13,597	5,114	22,738	14,882	13,975	11,256	4,714	2,629	2,757	1,586
9	1,881	2,432	13,144	5,114	48,648	12,313	13,597	10,878	4,517	2,508	2,757	1,586
10	1,881	2,281	33,011	4,714	40,943	20,472	18,205	10,878	4,351	2,508	2,757	1,586
11	1,881	2,281	57,713	4,517	33,011	29,234	15,335	10,878	4,351	2,508	2,757	1,586
12	1,881	3,777	25,608	4,517	43,511	18,205	15,335	10,878	4,026	2,387	2,757	1,586
13	1,881	3,596	18,810	4,517	46,911	15,788	14,882	11,633	3,868	2,387	2,508	1,586
14	2,009	3,067	15,335	4,714	32,256	13,597	13,975	11,935	3,868	2,387	2,387	1,586
15	2,009	2,886	13,597	4,517	27,799	11,935	16,619	11,633	3,868	2,387	2,508	1,586
16	1,881	2,735	13,144	4,351	24,173	10,878	19,943	10,576	3,701	2,387	2,508	1,586
17	1,881	2,735	12,691	5,726	21,605	10,274	18,205	10,274	3,701	2,387	2,281	1,586
18	1,881	3,596	10,274	12,691	19,338	9,896	16,619	9,896	3,701	2,387	2,176	1,586
19	1,881	5,666	9,896	8,989	17,677	9,292	19,338	9,594	3,558	2,387	1,972	1,586
20	1,881	10,576	9,594	7,856	16,166	8,989	24,173	9,594	3,558	2,387	1,866	1,586
21	1,881	8,989	8,158	7,343	15,788	8,687	30,670	9,292	3,278	2,387	1,866	1,586
22	1,881	7,176	7,630	7,086	15,788	8,461	56,731	8,989	3,278	2,387	1,775	1,586
23	1,881	8,385	7,343	6,829	15,335	17,677	38,450	8,158	3,142	2,387	1,775	1,586
24	1,881	8,083	6,572	7,086	13,144	21,076	29,234	7,343	3,142	2,387	1,775	1,685
25	1,881	6,406	6,361	10,274	11,935	23,493	23,493	7,343	3,142	2,387	1,775	1,685
26	2,130	5,439	6,361	131,441	11,633	19,943	21,076	7,343	3,142	2,387	1,866	1,685
27	2,009	4,986	5,114	45,173	11,256	16,166	19,338	7,343	3,142	2,878	1,866	1,775
28	2,009	4,563	5,114	28,479	11,256	15,788	17,072	7,086	2,999	4,351	1,866	2,878
29	2,432	5,439	5,114	23,493	10,878	14,882	17,072	7,086	2,999	6,361	1,866	1,775
30	2,432	39,508	5,114	20,472		14,428	14,428	6,829	2,999	3,422	1,866	1,685
31	2,432		5,114	18,205		14,882		6,829		3,142	1,866	
AVG. (m^3/s)	1,939	5,418	23,099	13,498	21,839	14,543	19,656	10,313	4,349	2,780	2,317	1,683

1985 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,685	1,405	2,176	3,558	14,202	7,509	29,763	10,727	4,812	3,822	2,032	1,753
2	1,496	1,405	2,047	3,558	11,860	7,509	29,159	10,349	4,812	3,369	2,032	1,662
3	1,496	1,586	1,919	3,558	10,047	7,509	32,785	8,989	4,480	2,984	2,032	1,753
4	1,405	1,866	1,919	4,177	8,989	7,214	25,231	8,687	3,989	3,112	2,032	1,753
5	1,405	2,629	1,919	19,112	7,781	7,214	23,115	8,385	4,321	2,984	2,032	1,753
6	1,405	3,868	1,919	11,860	6,617	7,214	21,076	8,385	4,321	2,855	2,032	1,753
7	1,405	2,999	1,919	9,669	6,323	7,214	19,641	8,083	3,989	2,727	2,123	1,753
8	1,405	2,508	1,919	7,509	6,617	7,214	21,076	8,385	3,822	2,599	2,032	1,753
9	1,405	2,629	2,176	6,323	6,081	7,214	22,058	7,781	3,822	2,470	2,032	1,753
10	1,405	2,387	2,176	6,081	5,847	7,214	20,623	8,083	4,321	2,342	2,032	1,753
11	1,405	2,176	2,047	5,605	5,847	7,214	22,058	8,083	4,812	2,855	2,032	1,753
12	1,405	1,972	2,984	5,129	5,847	7,509	23,115	8,385	4,812	2,470	2,032	1,753
13	1,405	1,866	3,936	4,887	27,346	7,509	21,605	8,838	4,812	2,342	1,851	1,753
14	1,405	1,775	2,659	4,653	43,436	8,083	18,130	10,122	4,646	2,213	1,851	1,753
15	1,405	1,775	2,334	4,653	21,076	8,687	15,033	16,543	4,480	2,213	1,851	1,753
16	1,405	1,866	2,659	4,412	15,033	9,216	13,748	13,295	4,480	2,213	1,851	1,753
17	1,405	1,866	2,500	4,177	12,917	10,727	13,371	10,802	4,321	2,213	1,851	1,753
18	1,405	1,775	2,334	4,412	11,482	9,669	13,371	9,820	4,321	2,342	1,851	1,753
19	1,405	1,775	2,500	4,412	11,104	12,917	12,917	9,518	5,681	2,470	1,851	1,753
20	1,405	1,775	2,659	7,509	10,727	26,288	12,162	8,158	3,369	2,470	1,753	1,753
21	1,405	2,387	2,659	15,033	10,727	18,130	11,482	7,856	3,241	2,470	1,753	1,662
22	1,322	9,292	2,659	10,727	10,727	15,033	10,727	7,554	3,241	2,342	1,753	1,662
23	1,405	6,081	2,825	8,687	10,727	27,950	12,540	7,040	4,321	2,342	1,941	1,662
24	1,405	4,887	2,984	7,781	10,727	26,288	11,482	6,768	4,321	2,342	1,753	1,662
25	1,405	3,747	2,984	6,920	8,083	21,076	11,104	6,497	4,155	2,213	1,753	1,662
26	1,405	3,362	2,984	6,323	7,781	18,130	10,349	6,225	3,989	2,213	1,753	1,662
27	1,405	3,173	3,747	6,081	7,509	16,694	10,047	6,225	3,822	2,213	1,753	1,662
28	1,405	2,659	3,747	5,605	7,509	20,094	11,860	5,953	3,498	2,123	1,753	1,662
29	1,405	2,500	3,558	5,371		26,817	10,727	9,140	3,822	2,123	1,753	1,662
30	1,405	2,176	3,558	7,509		24,173	10,349	4,971	3,822	2,123	1,753	1,662
31	1,405		3,558	15,486		21,605		7,856		2,032	1,662	
AVG. (m^3/s)	1,417	2,739	2,644	7,122	11,535	13,446	17,357	8,629	4,222	2,503	1,889	1,720

1986 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,753	2,364	4,094	4,721	6,497	7,856	7,426	6,262	6,262	3,029	1,647	1,647
2	1,753	2,682	2,840	5,613	6,262	7,426	7,630	4,525	6,028	2,719	1,647	1,647
3	1,753	2,682	2,213	5,847	6,497	6,957	7,630	4,185	5,794	2,719	1,647	1,647
4	1,753	2,840	2,523	5,847	6,723	6,723	7,426	4,185	7,191	2,719	1,647	1,647
5	1,753	3,535	2,682	5,613	6,723	6,497	7,191	4,359	5,560	2,402	1,647	1,647
6	1,753	4,306	2,999	5,847	7,191	6,497	6,723	5,099	5,099	2,251	1,647	1,647
7	1,662	5,371	3,158	5,847	6,497	6,723	6,723	4,699	4,865	2,251	1,647	1,647
8	1,662	9,140	3,158	13,220	6,262	6,957	6,497	4,359	4,525	2,251	1,647	1,647
9	2,599	19,716	2,682	12,464	8,385	7,426	6,262	4,185	4,525	2,251	1,647	1,647
10	2,342	38,979	2,364	8,007	9,065	7,630	6,262	4,185	5,333	2,251	1,647	1,647
11	1,941	17,374	2,364	7,705	8,838	7,856	6,262	4,019	4,359	2,251	1,647	1,647
12	1,851	16,090	2,523	7,448	8,385	8,158	6,262	4,019	6,262	2,100	1,647	1,647
13	1,941	14,504	2,523	6,323	8,158	8,385	6,028	4,019	5,099	2,100	1,647	1,647
14	1,851	13,220	2,682	6,089	9,292	8,158	6,028	4,019	4,699	1,949	1,647	1,647
15	1,851	12,842	2,523	6,323	10,576	7,630	9,065	4,019	4,359	1,949	1,647	1,647
16	2,599	13,220	2,999	6,323	9,518	7,191	7,856	4,019	4,359	1,949	1,647	1,511
17	3,369	11,331	3,158	12,993	9,065	6,957	6,957	4,019	4,359	1,949	1,647	1,511
18	33,616	10,651	2,840	25,004	8,612	6,723	6,723	4,019	4,185	1,949	1,647	1,511
19	33,616	10,651	2,840	22,133	8,385	6,497	6,497	4,019	3,853	1,949	1,647	1,511
20	15,637	9,518	3,158	17,601	8,385	6,497	6,723	4,019	3,520	1,949	1,511	1,511
21	14,730	9,140	3,535	14,277	8,158	6,262	6,497	4,359	3,354	1,949	1,511	1,511
22	14,730	8,838	3,717	12,993	7,856	6,262	6,497	6,723	3,188	1,949	1,511	1,647
23	14,504	8,309	3,535	11,935	7,630	6,957	6,497	6,497	3,188	1,647	1,511	1,647
24	14,504	7,169	3,158	11,935	7,856	6,497	6,497	5,560	3,029	1,647	1,647	1,647
25	4,925	6,323	2,999	11,633	8,158	6,262	6,497	4,525	3,029	1,647	1,647	1,647
26	2,213	6,323	4,094	9,518	7,856	6,262	6,497	4,525	3,029	1,647	1,647	1,647
27	2,213	5,847	4,306	8,385	7,856	7,191	6,262	4,699	3,686	1,647	1,647	1,647
28	2,213	5,613	4,510	7,191	8,158	6,957	6,497	4,699	3,188	1,647	1,647	1,647
29	2,213	5,371	4,721	6,957		6,957	6,497	4,865	4,019	1,647	1,647	1,647
30	2,213	5,371	4,721	6,723		7,191	6,497	4,699	3,188	1,647	1,647	1,647
31	2,213		4,721	6,262		7,426		5,794		1,647	1,647	
AVG. (m^3/s)	6,249	9,644	3,237	9,638	7,959	7,063	6,764	4,619	4,438	2,053	1,629	1,620

1987 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	2,012	2,182	2,182	8,269	2,448	4,623	23,838	15,183	12,384	10,669	8,674	1,839
2	2,012	2,182	2,182	3,797	2,711	4,623	28,875	16,466	17,759	10,669	5,153	1,451
3	2,012	2,448	2,182	3,525	6,769	4,623	28,142	15,824	19,059	9,591	4,298	1,451
4	2,012	2,448	2,012	3,250	6,769	4,912	23,838	15,183	21,684	9,591	3,877	1,451
5	2,012	2,448	2,012	4,075	6,324	19,931	21,025	15,183	18,408	9,591	3,460	1,451
6	2,182	2,012	2,012	7,266	5,834	13,382	19,712	15,183	17,759	10,154	3,460	1,451
7	2,448	2,012	2,012	5,395	5,395	9,693	19,712	14,598	17,111	14,068	3,047	1,451
8	2,448	2,012	2,012	4,912	4,912	8,269	21,025	15,183	16,466	14,068	2,638	1,451
9	2,448	2,012	2,012	26,513	4,912	7,766	21,025	15,183	16,466	12,384	2,236	1,451
10	2,182	2,182	2,012	14,121	4,623	7,266	19,712	14,598	15,824	10,154	1,839	1,451
11	2,182	2,182	2,012	8,269	4,623	11,135	21,684	14,598	15,183	8,674	1,839	1,839
12	2,182	2,182	2,012	6,324	4,623	10,412	22,400	14,068	15,183	8,220	1,451	1,451
13	2,182	2,182	2,012	4,912	4,623	9,693	23,118	14,068	15,183	7,366	1,451	1,451
14	2,182	2,182	2,012	4,337	4,623	8,725	20,368	13,487	15,183	5,589	1,451	1,451
15	2,182	2,182	2,012	3,525	4,623	7,766	19,059	13,487	14,598	5,153	1,451	1,451
16	2,182	2,182	2,012	3,250	4,623	7,266	19,059	13,487	16,466	4,298	1,451	1,451
17	2,182	2,182	2,012	2,982	4,623	7,266	19,712	12,908	21,025	3,877	1,839	1,451
18	2,182	2,182	2,012	2,711	4,623	7,266	20,368	13,487	16,466	3,877	1,451	1,451
19	2,182	2,182	2,012	2,711	4,623	7,266	19,712	13,487	15,824	3,877	1,451	1,451
20	2,182	2,182	2,012	2,448	4,623	6,769	19,059	14,068	15,824	3,877	1,451	1,451
21	2,182	2,182	2,012	2,182	4,623	7,766	17,759	14,068	14,598	3,877	1,451	1,839
22	2,448	2,182	2,012	4,075	4,623	9,182	17,759	14,068	14,598	3,877	1,451	1,451
23	2,448	2,182	1,844	4,623	4,623	11,914	17,759	14,068	14,068	3,877	1,451	1,451
24	2,448	2,182	2,012	4,623	4,623	11,914	18,408	14,598	13,487	3,460	1,451	1,451
25	2,182	2,182	2,448	2,448	4,623	27,467	17,759	14,068	12,908	3,460	1,451	1,839
26	2,182	2,182	3,250	2,182	4,623	23,838	15,824	12,908	12,908	3,460	1,451	1,839
27	2,182	2,182	4,075	2,182	4,623	20,368	15,183	12,384	12,384	3,460	1,839	1,839
28	2,182	2,182	4,912	2,182	4,623	19,712	14,598	12,384	12,384	3,047	1,839	1,839
29	2,182	2,182	14,121	2,448		19,059	14,598	14,068	11,810	3,047	1,839	1,839
30	2,182	2,182	8,725	2,448		19,712	15,183	12,908	10,928	2,638	1,839	1,839
31	2,182		8,725	2,448		21,684		12,384		4,719	1,839	
AVG. (m^3/s)	2,206	2,186	3,061	4,982	4,783	11,654	19,876	14,117	15,464	6,602	2,318	1,567

1988 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,689	3,472	2,367	11,757	48,762	22,882	23,908	31,956	9,390	4,466	2,541	1,815
2	1,689	3,251	2,588	12,309	20,199	21,541	20,909	26,906	9,390	4,466	2,541	1,815
3	1,689	2,809	2,367	11,204	12,309	22,251	22,409	20,120	8,206	4,213	2,359	1,996
4	1,689	3,030	2,588	11,757	11,204	22,882	22,409	18,858	7,433	4,213	2,359	1,815
5	1,689	5,010	2,588	10,257	10,257	22,251	19,489	17,596	7,433	3,969	2,359	1,815
6	1,689	6,549	2,367	10,257	9,863	20,909	20,909	16,964	7,062	3,969	2,359	1,815
7	1,689	5,934	2,194	10,257	9,390	20,909	31,088	16,333	7,062	3,716	2,359	1,996
8	1,689	5,010	2,028	9,863	8,995	20,199	32,824	15,702	6,691	3,472	2,178	2,359
9	1,689	4,395	2,367	9,863	8,995	24,460	26,117	14,439	7,062	3,188	2,178	2,722
10	1,689	3,779	3,779	9,390	8,206	30,141	26,117	13,808	7,062	3,219	2,359	2,722
11	1,689	3,779	5,934	8,995	7,780	38,032	25,407	12,861	6,691	3,219	2,359	2,359
12	1,689	3,030	5,626	8,600	7,780	30,930	27,616	13,335	7,062	3,219	2,178	2,359
13	1,689	2,809	4,703	7,780	7,780	29,352	26,906	12,861	7,433	3,472	1,996	2,178
14	1,689	2,588	3,779	7,370	7,370	24,460	26,906	13,808	7,804	3,472	1,996	2,178
15	1,689	2,588	3,251	6,241	7,780	22,251	33,929	13,808	8,206	3,219	1,996	1,996
16	1,689	2,588	2,809	5,934	8,600	19,568	41,977	13,808	8,206	3,219	2,178	1,996
17	2,588	2,588	2,809	5,626	7,370	18,858	51,287	12,861	6,691	3,219	2,178	1,996
18	3,779	2,367	2,809	5,318	7,370	29,352	31,088	11,836	6,628	2,975	2,359	1,996
19	3,030	3,030	2,809	5,010	8,600	70,066	22,409	9,863	7,433	2,722	2,178	1,996
20	2,588	3,030	2,809	5,010	23,671	54,128	24,618	8,916	9,863	2,722	2,178	1,996
21	2,588	3,030	44,817	5,010	26,906	38,978	37,243	9,390	16,964	2,541	2,178	1,996
22	2,367	2,809	185,424	5,010	39,846	34,481	29,352	9,863	7,062	2,541	2,178	1,815
23	2,028	2,809	65,411	5,934	35,428	30,141	24,066	10,889	5,578	2,541	2,178	1,815
24	2,367	2,588	44,817	6,959	22,251	27,695	21,620	11,362	5,578	2,359	2,178	2,359
25	1,854	2,367	30,930	5,318	20,199	27,695	21,620	9,390	5,208	2,178	2,178	2,541
26	1,854	2,367	18,227	4,703	21,541	26,906	20,909	11,362	5,208	2,359	2,178	2,541
27	2,028	2,367	15,623	5,010	20,199	25,328	21,620	40,083	5,208	2,359	2,178	2,178
28	2,028	2,367	15,071	5,010	26,906	33,613	25,407	27,616	4,963	2,359	1,996	1,996
29	1,854	2,194	13,966	5,010	31,798	105,731	23,119	16,964	4,963	2,359	1,996	1,996
30	1,854	2,194	12,861	5,010		39,136	34,560	12,309	4,711	2,541	1,996	1,996
31	2,194		12,861	9,863		26,906		10,889		2,541	1,996	
AVG. (m^3/s)	2,001	3,224	16,857	7,601	16,805	31,678	27,261	15,702	7,275	3,130	2,207	2,105

1989 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,815	4,466	3,969	6,691	5,578	7,433	5,208	3,472	2,359	1,681	1,412	1,278
2	1,815	7,433	3,969	6,320	5,578	7,433	5,578	3,472	2,359	1,681	1,412	1,412
3	1,815	9,390	3,969	5,949	5,208	7,433	5,578	3,472	2,359	1,681	1,412	1,412
4	1,815	6,320	3,969	5,578	5,208	7,062	5,578	3,472	2,178	1,681	1,412	1,412
5	1,815	4,963	3,716	5,578	5,578	7,062	5,208	3,472	2,178	1,681	1,412	1,412
6	1,815	7,433	3,716	5,208	5,949	7,433	5,578	3,472	2,178	1,681	1,412	1,412
7	1,815	32,824	3,716	5,208	6,320	7,433	5,578	3,219	2,178	1,681	1,412	1,412
8	1,996	19,489	3,716	5,578	6,320	7,433	5,208	2,975	1,996	1,681	1,412	1,412
9	2,359	9,863	3,716	7,804	5,949	7,062	5,578	2,975	1,996	1,681	1,412	3,716
10	2,722	8,206	3,716	7,804	5,949	6,691	5,208	2,975	1,996	1,681	1,412	1,996
11	2,178	6,691	4,711	6,691	5,949	6,320	4,963	2,975	1,996	1,681	1,412	1,815
12	2,359	5,578	4,213	6,691	5,208	6,320	4,963	2,722	2,178	1,681	1,412	1,815
13	2,178	4,473	4,466	6,320	4,963	6,320	4,711	2,975	2,541	1,547	1,412	1,681
14	2,178	4,711	4,466	6,320	4,711	7,804	4,711	2,975	2,178	1,547	1,412	1,547
15	1,996	6,320	4,213	6,320	4,711	8,206	4,711	2,975	2,178	1,547	1,412	1,412
16	1,996	8,916	23,119	6,320	4,711	7,804	4,466	2,975	3,472	1,547	1,815	8,206
17	1,996	9,863	25,407	5,949	4,466	7,433	4,466	2,722	2,722	1,547	1,681	3,219
18	5,949	8,206	50,183	5,949	4,466	7,062	4,213	2,722	2,359	1,547	1,547	2,178
19	7,062	7,433	20,909	6,320	4,466	7,433	3,969	2,541	2,178	1,547	1,412	1,815
20	6,320	6,691	15,071	6,691	4,213	7,433	3,969	2,541	1,996	1,412	1,412	1,681
21	4,963	6,320	12,309	6,320	4,213	7,433	3,969	2,541	1,815	1,412	1,412	1,547
22	3,969	5,578	11,362	5,949	4,466	7,433	3,969	2,541	1,815	1,412	1,412	1,547
23	2,975	5,208	10,415	5,949	4,711	7,433	3,969	2,541	1,815	1,412	1,278	1,412
24	2,722	4,711	9,863	5,949	4,963	7,062	3,969	2,541	1,815	1,412	1,278	1,412
25	2,722	4,466	11,362	5,949	5,578	7,804	3,969	2,541	1,815	1,412	1,278	1,412
26	2,722	4,466	9,863	5,949	5,949	7,433	3,716	2,359	1,681	1,412	1,278	1,412
27	4,466	4,711	8,916	5,949	5,949	7,062	3,716	2,359	1,681	1,412	1,278	1,412
28	4,963	4,466	8,206	5,949	6,320	6,691	3,716	2,359	1,681	1,547	1,278	1,547
29	11,836	4,466	7,804	5,949		5,949	3,716	2,359	1,681	1,547	1,278	1,547
30	8,206	4,213	7,433	5,949		5,578	3,716	2,359	1,681	1,412	1,278	1,547
31	5,208		7,062	5,949		5,208		2,359		1,412	1,278	
AVG. (m^3/s)	3,508	7,596	9,662	6,164	5,273	7,087	4,596	2,837	2,102	1,555	1,399	1,901

1990 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,681	1,681	17,596	8,206	2,722	112,043	14,597	7,890	4,387	2,438	1,618	1,618
2	1,815	1,681	11,836	7,062	2,722	39,846	12,467	6,360	4,387	2,438	1,618	1,618
3	1,681	1,681	9,863	6,691	2,722	32,982	10,021	5,476	4,024	2,438	1,618	1,618
4	3,464	1,681	7,804	5,949	2,722	28,011	8,995	6,360	3,748	2,233	1,618	1,618
5	1,996	1,547	6,691	4,213	2,722	29,037	8,995	5,839	3,472	2,233	1,618	3,196
6	1,996	1,547	5,949	4,213	2,722	23,671	9,468	5,113	3,472	2,028	1,618	1,823
7	2,178	1,547	5,208	3,969	2,722	19,726	10,021	5,113	3,472	2,028	1,618	1,618
8	1,815	1,681	4,955	3,716	2,722	18,148	10,021	5,113	3,196	2,028	1,618	1,618
9	1,815	1,547	4,955	3,464	2,722	16,017	11,757	5,476	3,196	2,028	1,618	1,483
10	1,815	3,219	5,578	3,219	2,722	16,017	11,047	5,476	3,196	2,028	1,618	1,483
11	1,681	2,722	8,206	2,975	2,722	16,728	11,047	5,839	3,196	2,028	1,618	1,483
12	1,707	2,178	8,206	3,219	7,804	16,728	12,467	5,839	2,919	2,028	1,823	1,483
13	1,547	2,541	7,433	3,219	7,804	15,307	12,467	5,476	2,919	1,823	1,823	1,483
14	1,547	26,827	6,691	2,975	51,287	16,017	13,887	5,113	2,919	1,823	1,823	1,823
15	1,547	8,916	6,320	2,975	22,409	16,017	12,467	5,113	2,919	1,823	1,823	1,618
16	1,412	6,320	5,949	2,722	16,964	14,597	11,047	5,113	2,643	1,823	1,618	1,483
17	1,547	5,208	5,578	2,975	18,227	13,887	10,494	7,890	5,839	1,823	1,618	1,483
18	3,969	4,711	5,208	2,975	14,439	13,177	10,494	7,401	8,443	1,823	1,618	1,349
19	2,975	3,969	5,208	2,722	16,333	13,177	10,021	6,360	2,919	1,823	1,483	1,349
20	2,178	3,464	4,955	2,975	13,335	13,887	10,021	6,880	2,643	1,823	1,483	1,483
21	1,996	3,156	4,955	3,219	11,362	14,597	9,468	6,360	2,643	1,823	1,483	1,483
22	1,815	2,975	4,711	3,219	10,415	15,307	9,468	6,360	2,643	1,823	1,483	1,349
23	1,681	2,975	4,711	2,975	10,415	14,597	9,468	6,360	2,643	1,823	1,483	1,349
24	1,681	2,975	4,711	2,975	9,390	13,177	10,021	5,839	2,438	1,823	1,483	1,349
25	1,681	3,716	4,466	2,722	9,390	13,177	10,021	5,476	2,438	1,823	1,483	1,349
26	1,681	5,949	4,466	2,975	10,415	14,597	10,494	4,750	2,438	1,823	1,618	1,349
27	1,681	5,578	4,466	2,975	11,362	15,307	11,047	5,113	2,438	1,823	1,618	1,349
28	1,681	4,955	4,466	2,975	20,120	16,728	8,995	4,387	2,233	1,618	1,618	1,349
29	1,681	70,382	4,213	2,722		16,728	7,890	4,387	2,233	1,618	1,618	1,483
30	1,681	35,428	4,213	2,722		16,017	7,401	4,387	2,233	1,618	1,618	1,618
31	1,681		10,415	2,722		16,728		4,387		1,618	1,618	
AVG. (m^3/s)	1,913	7,425	6,451	3,633	10,408	21,032	10,536	5,711	3,276	1,929	1,614	1,559

1991 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,823	1,618	1,618	1,618	1,349	8,995	6,360	7,788	3,282	1,933	1,539	1,404
2	1,618	1,618	1,483	1,618	1,483	7,890	5,476	7,788	4,498	1,933	1,539	1,404
3	1,618	1,618	1,483	1,618	1,483	6,880	18,148	6,273	3,787	1,736	1,404	1,404
4	1,618	1,618	1,823	2,028	1,483	6,880	16,254	5,918	3,535	1,736	1,404	1,404
5	1,618	1,618	2,438	1,618	1,483	5,476	15,623	5,563	3,535	1,736	1,404	1,404
6	1,618	1,618	3,472	1,618	1,618	4,750	16,254	5,208	3,535	1,736	1,404	1,404
7	1,618	1,823	2,233	1,618	1,483	4,387	13,098	4,853	3,535	1,736	1,404	1,404
8	1,618	3,748	2,028	1,618	1,618	4,024	19,726	4,853	3,282	1,736	1,404	1,404
9	1,618	3,196	1,823	1,618	1,618	4,024	31,956	4,853	3,030	1,736	1,404	1,278
10	1,618	2,919	1,618	1,618	1,618	3,748	21,304	4,498	3,030	1,736	1,404	1,278
11	1,618	2,643	1,618	1,618	1,823	3,472	16,254	4,142	3,030	1,539	1,404	1,278
12	1,618	2,438	1,618	1,483	1,823	3,748	13,098	3,787	2,777	1,539	1,404	1,404
13	1,483	2,233	1,618	1,483	2,028	3,472	11,362	3,787	2,777	1,539	1,278	1,404
14	1,349	2,028	2,438	1,483	2,028	3,196	10,494	3,535	2,777	1,539	1,404	1,404
15	1,349	1,823	2,233	1,483	2,028	3,472	10,021	3,535	3,030	1,539	1,404	1,278
16	1,349	1,618	2,028	1,483	3,472	3,748	14,360	3,535	2,777	1,539	1,404	1,278
17	1,483	1,618	2,028	1,483	4,750	3,748	14,360	3,535	2,525	1,404	1,404	1,278
18	1,618	1,483	2,028	1,483	4,024	5,839	11,362	3,282	2,525	1,404	1,539	1,278
19	1,618	1,483	2,028	1,483	5,113	7,890	10,021	3,030	2,328	1,539	1,404	1,539
20	1,618	1,483	2,028	1,483	5,476	8,995	10,021	3,030	2,328	1,539	1,404	3,787
21	1,618	1,483	1,823	1,618	5,113	10,494	9,153	5,918	2,328	1,539	1,404	1,539
22	1,618	1,483	1,823	1,483	4,387	8,995	9,626	4,142	2,328	1,539	1,404	1,539
23	2,438	1,483	1,823	1,483	4,387	8,443	8,679	3,535	2,328	1,404	1,404	1,404
24	3,196	1,483	1,618	1,483	4,387	8,443	8,679	3,535	2,130	1,404	1,404	1,404
25	2,233	1,349	1,618	1,349	10,021	8,443	8,679	3,282	2,130	1,404	1,404	1,278
26	2,028	1,483	1,618	1,349	20,515	9,468	8,206	3,282	1,933	1,404	1,278	1,278
27	1,823	1,483	1,618	1,349	13,887	10,021	7,338	3,282	1,933	1,404	1,278	1,278
28	1,823	1,618	1,618	1,349	10,021	10,021	6,983	3,282	1,933	1,404	1,404	1,278
29	1,618	1,618	1,618	1,483		8,995	6,273	3,535	1,933	1,404	1,404	1,278
30	1,618	1,618	1,618	1,483		8,995	5,918	3,535	1,933	1,404	1,404	1,278
31	1,618		1,618	1,483		7,890		3,535		1,404	1,404	
AVG. (m^3/s)	1,714	1,845	1,874	1,531	4,304	6,608	12,170	4,311	2,761	1,567	1,405	1,442

1992 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,404	2,328	5,563	19,726	6,983	6,983	22,093	13,177	7,890	5,918	2,525	2,130
2	1,404	2,130	5,208	15,623	6,273	6,983	22,093	12,467	8,443	5,208	2,525	2,130
3	1,278	3,787	4,498	14,360	6,273	6,628	22,093	10,494	6,880	4,142	2,525	2,130
4	1,278	3,787	3,787	12,467	6,273	6,273	22,093	10,494	6,880	4,498	2,525	2,130
5	16,254	3,282	3,535	11,836	5,918	7,338	23,671	10,494	9,468	4,498	2,525	2,130
6	27,064	3,030	3,535	11,362	6,273	7,788	24,460	8,995	8,443	3,787	2,525	1,933
7	14,360	2,777	3,787	10,968	5,563	7,788	26,038	8,443	7,890	3,535	2,328	1,933
8	8,206	2,525	43,792	10,968	5,208	7,338	26,038	10,021	7,401	3,535	2,328	1,933
9	5,563	2,525	76,694	10,494	4,853	6,983	27,064	10,021	6,880	3,282	2,328	1,933
10	4,142	2,328	21,304	10,021	5,208	6,983	27,064	9,468	7,890	3,282	2,130	1,933
11	3,282	2,328	22,093	10,021	4,853	7,338	28,011	8,443	6,360	3,282	2,130	1,933
12	3,030	2,328	13,729	9,626	4,142	7,338	29,983	8,443	5,476	3,030	2,130	1,933
13	2,777	2,130	10,494	9,626	4,142	7,338	28,011	8,443	5,113	3,030	2,328	1,933
14	3,282	2,130	9,153	9,626	4,142	7,338	29,037	7,890	9,468	2,777	2,328	1,933
15	2,525	2,130	8,679	9,153	4,498	8,206	22,093	7,890	6,360	2,777	2,328	1,736
16	2,328	2,130	8,206	9,626	4,853	9,153	18,148	9,468	6,360	2,777	2,328	1,736
17	2,328	2,130	7,788	9,626	5,208	9,153	16,728	17,438	11,757	2,525	2,328	1,736
18	2,525	2,130	7,788	9,153	6,628	26,038	16,728	45,764	9,468	2,525	2,130	1,736
19	2,525	2,525	7,788	8,679	10,494	33,929	16,017	23,671	13,177	2,525	2,130	1,736
20	2,328	2,328	7,788	8,679	10,494	19,726	14,597	18,148	14,360	2,525	2,130	1,736
21	2,130	2,130	7,338	8,206	8,679	16,017	13,887	13,887	11,836	3,787	2,130	1,736
22	2,130	2,130	8,679	8,206	8,679	13,887	13,177	12,467	11,836	4,142	2,130	1,736
23	2,130	2,130	20,515	8,206	11,362	11,047	12,467	11,047	10,021	3,787	2,130	1,736
24	1,933	2,130	16,885	7,788	6,983	10,494	13,177	12,467	9,153	3,787	2,328	1,933
25	2,777	2,130	14,992	7,788	6,628	10,494	13,177	10,494	8,679	3,535	2,328	1,933
26	2,777	2,130	16,254	7,338	6,273	12,467	11,757	9,468	8,206	3,282	2,130	1,933
27	2,130	2,328	34,954	7,338	6,628	16,017	12,467	8,995	10,021	3,030	2,130	1,933
28	1,933	3,282	22,093	6,983	6,628	19,726	12,467	8,995	7,338	3,030	2,130	1,736
29	1,933	5,563	22,882	6,983	6,628	22,093	12,467	8,443	6,983	3,030	2,130	1,736
30	1,933	5,918	31,009	6,983		22,093	11,757	8,443	6,273	3,030	2,130	1,736
31	2,525		26,038	6,983		21,304		7,401		3,030	2,130	
AVG. (m^3/s)	4,265	2,689	16,027	9,821	6,440	12,332	19,629	11,993	8,544	3,449	2,270	1,887

1993 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,736	1,736	4,955	4,853	6,983	8,364	18,148	11,283	11,836	3,661	2,336	1,909
2	1,736	1,736	7,433	4,853	6,628	8,364	20,515	11,836	11,283	3,361	2,336	1,909
3	1,736	1,539	7,062	4,853	6,273	8,364	15,465	16,806	10,100	3,361	2,123	1,909
4	1,736	1,539	6,691	4,853	5,918	7,875	14,203	10,652	9,468	3,061	2,123	1,909
5	1,539	1,539	6,320	5,208	5,563	7,875	13,571	12,388	8,916	3,061	2,123	1,909
6	1,539	1,539	6,320	4,853	5,563	7,354	13,571	11,283	8,916	3,061	2,123	1,909
7	1,539	1,539	6,320	5,563	5,208	24,460	13,571	11,283	8,916	2,762	2,123	1,909
8	1,539	1,539	12,861	5,918	5,208	21,304	11,836	10,652	8,364	2,762	2,336	2,123
9	1,539	1,539	10,415	5,563	5,563	18,148	11,836	10,652	7,875	2,762	2,123	2,123
10	1,539	1,539	9,390	5,563	5,563	18,148	22,093	15,465	7,354	2,762	2,123	1,909
11	1,539	1,539	8,522	5,208	5,208	16,096	18,937	17,438	7,354	2,762	2,123	1,909
12	1,539	1,539	7,804	5,208	5,208	14,203	15,465	14,755	6,833	2,762	2,336	1,909
13	1,539	1,539	7,804	4,853	5,208	13,019	15,465	14,203	6,833	2,762	2,123	1,909
14	1,539	1,933	17,596	4,853	4,853	11,836	18,148	20,515	6,312	2,762	2,123	1,909
15	1,539	6,273	23,908	4,853	4,853	10,652	22,882	14,755	6,312	2,762	2,123	1,909
16	1,539	3,787	18,227	4,853	4,853	10,100	22,882	15,465	6,833	2,762	2,123	1,909
17	1,539	2,777	13,098	4,853	5,208	10,100	20,515	19,726	7,875	2,762	2,123	2,123
18	1,539	2,328	11,362	4,853	5,208	9,468	19,726	19,726	7,875	2,549	2,123	2,336
19	1,539	2,328	10,021	4,853	5,208	8,916	31,404	18,937	7,354	2,549	2,123	2,336
20	1,539	14,992	9,626	4,853	5,208	8,916	25,249	17,438	6,833	2,549	2,123	2,336
21	1,539	78,904	9,153	5,208	5,563	8,364	18,148	17,438	6,833	2,549	2,123	2,336
22	1,539	33,692	8,206	4,853	6,983	7,875	14,755	17,438	5,902	2,549	2,123	2,336
23	1,539	15,071	7,788	4,853	15,623	8,364	13,571	16,096	5,081	2,549	2,123	2,336
24	1,539	10,415	6,983	5,208	33,929	9,468	14,755	16,096	4,261	2,549	2,123	2,336
25	1,539	8,206	6,628	5,208	13,571	10,652	13,019	13,571	4,261	2,549	2,123	2,336
26	1,736	7,062	6,273	5,563	11,283	11,836	11,836	17,438	4,261	2,336	2,336	2,336
27	1,736	6,320	5,918	7,338	10,100	13,019	11,283	22,093	3,961	2,336	2,336	2,336
28	1,736	5,578	5,918	9,626	8,916	14,203	11,283	15,465	3,961	2,336	2,123	2,336
29	1,736	5,208	5,563	8,206		15,465	10,652	13,571	3,661	2,336	2,123	2,336
30	1,736	4,955	5,208	7,338		13,019	10,652	13,019	3,661	2,336	1,909	2,336
31	1,736		5,208	7,338		13,019		12,388		2,336	1,909	
AVG. (m^3/s)	1,603	7,674	8,986	5,550	7,695	11,898	16,515	15,157	6,976	2,721	2,150	2,115

1994 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	2,336	1,696	1,578	2,762	18,937	9,468	14,597	9,468	3,472	2,643	3,196	1,618
2	2,336	1,696	1,578	16,806	13,887	10,021	13,177	9,468	10,494	2,438	2,028	1,483
3	2,336	1,578	1,696	43,792	11,757	10,494	12,467	8,443	5,476	2,438	2,028	1,483
4	2,336	1,578	1,578	31,009	10,021	10,494	12,467	7,890	4,387	2,233	1,823	1,618
5	2,336	1,578	1,578	18,148	8,995	16,728	12,467	7,890	3,748	2,233	1,618	1,618
6	2,336	1,460	1,578	13,177	8,443	46,869	11,757	7,890	3,748	2,233	1,618	1,618
7	2,123	1,460	1,578	10,494	8,443	29,983	11,757	7,890	3,472	2,233	1,618	1,618
8	2,123	1,578	1,578	9,468	8,995	20,515	10,021	10,021	3,472	2,233	1,618	1,618
9	2,123	1,578	1,578	8,995	8,443	18,148	8,995	13,177	3,472	2,233	1,618	1,618
10	2,123	1,578	1,578	8,443	8,995	16,017	8,443	11,757	3,472	2,233	1,618	1,483
11	2,123	1,578	1,578	7,401	11,047	14,597	7,401	11,047	3,196	2,233	1,483	1,483
12	2,123	1,578	1,578	6,880	10,494	13,887	7,890	11,047	3,196	2,028	1,483	1,349
13	2,123	1,578	3,061	6,360	12,467	13,177	7,890	10,021	3,196	1,823	1,618	1,349
14	2,123	1,578	3,661	5,839	11,047	11,757	8,443	8,995	3,196	1,618	1,618	1,349
15	2,123	1,909	2,549	14,597	11,047	10,494	7,890	8,443	3,196	1,618	1,618	1,349
16	2,123	1,909	2,336	11,047	10,494	10,494	7,890	7,401	3,196	1,618	1,618	1,349
17	2,123	1,696	2,336	10,021	9,468	10,021	6,880	6,880	3,196	2,028	1,618	1,349
18	2,123	1,696	2,336	8,995	8,995	10,021	5,839	6,360	2,643	2,643	1,618	1,215
19	2,123	1,696	2,336	8,443	8,443	10,494	6,360	5,839	2,643	2,643	1,618	1,215
20	2,123	1,696	2,336	7,890	7,890	10,494	5,476	5,839	2,438	2,028	1,618	1,215
21	2,123	1,696	2,123	7,401	8,443	10,021	5,839	5,476	2,919	1,823	1,618	1,215
22	1,909	1,696	2,123	7,401	8,995	10,021	5,839	5,476	2,919	1,823	1,618	1,215
23	1,909	1,696	2,123	6,880	7,890	10,021	6,880	5,113	2,919	1,823	1,618	1,215
24	1,909	1,696	2,123	6,360	7,401	10,021	7,890	5,113	2,919	1,823	1,618	1,349
25	1,696	1,696	2,123	5,839	7,890	9,468	5,839	4,750	2,919	2,028	1,483	1,349
26	1,578	1,696	2,336	5,476	10,494	9,468	5,476	4,387	2,919	2,028	1,483	1,349
27	1,578	1,578	2,549	5,476	11,047	10,021	5,476	4,024	2,919	2,028	1,483	1,483
28	1,578	1,578	3,661	5,113	10,021	10,494	4,750	4,024	2,919	2,028	3,196	1,483
29	1,578	1,578	3,361	13,887		11,047	7,401	4,024	2,919	1,823	1,823	1,483
30	1,578	1,578	2,762	53,497		10,494	11,047	4,024	2,919	1,823	1,618	1,483
31	1,578		2,549	33,929		13,177		3,748		2,028	1,618	
AVG. (m^3/s)	2,024	1,639	2,188	12,962	10,017	13,498	8,485	7,288	3,483	2,081	1,738	1,421

1995 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,349	1,618	5,563	7,338	6,983	7,788	8,206	13,729	9,626	3,030	2,130	1,736
2	1,349	1,483	4,853	7,788	6,983	7,788	10,494	16,254	8,679	3,030	2,130	1,736
3	1,349	1,483	4,853	9,153	6,983	7,788	11,362	14,992	7,788	3,535	2,130	2,130
4	1,349	1,483	4,498	9,626	6,628	7,788	10,021	14,360	7,338	3,030	2,130	1,736
5	1,349	1,618	4,498	9,153	6,628	7,788	9,626	13,729	6,983	2,777	1,933	1,736
6	1,349	1,618	4,142	8,679	6,628	7,788	9,153	15,623	6,628	2,525	1,933	1,736
7	1,349	1,618	4,142	7,788	9,626	9,153	9,626	14,992	6,273	2,328	1,933	1,736
8	1,349	1,618	3,787	7,338	9,153	9,153	10,021	13,098	6,273	2,328	1,933	1,736
9	1,349	1,618	3,787	6,983	8,679	13,729	9,153	12,467	8,679	2,525	1,933	1,736
10	1,349	1,618	3,787	6,983	8,679	10,968	37,874	12,467	6,628	2,328	1,933	1,736
11	1,349	1,618	3,787	7,338	10,968	10,968	42,845	11,836	5,918	3,535	1,933	1,736
12	1,349	1,618	3,535	7,338	11,362	10,494	25,249	11,362	5,563	3,535	1,736	1,736
13	1,349	1,618	3,535	8,679	11,362	9,626	19,726	11,362	5,208	3,030	1,736	1,736
14	1,349	1,618	3,535	10,021	10,968	9,153	33,929	11,362	4,853	4,498	1,736	1,539
15	1,349	1,618	3,535	10,021	10,494	9,153	26,038	11,362	4,853	3,787	1,736	1,539
16	1,349	1,823	14,360	12,467	10,021	19,726	22,093	10,968	5,208	2,777	1,736	1,539
17	1,483	2,028	33,929	11,362	9,626	15,623	20,515	10,021	4,498	2,525	1,736	1,539
18	1,483	2,233	14,360	10,494	9,153	13,729	24,460	9,626	4,142	2,328	1,736	1,539
19	1,823	27,064	11,836	9,626	8,679	11,836	22,093	9,153	4,142	2,328	1,736	1,539
20	1,618	44,817	10,021	9,153	9,153	11,362	18,148	8,679	5,563	2,130	1,736	1,539
21	1,618	45,764	9,153	8,206	9,153	10,968	16,885	8,679	6,273	2,130	1,736	1,539
22	1,483	37,874	8,206	7,788	8,679	10,968	15,623	8,679	4,498	2,130	1,736	1,539
23	1,483	19,726	7,788	7,338	8,206	10,021	15,623	8,206	4,142	2,130	2,525	1,736
24	1,483	13,098	7,788	7,338	7,788	11,362	16,254	8,206	3,787	2,130	2,328	2,130
25	3,472	10,021	7,788	6,983	7,788	10,968	15,623	7,338	3,535	2,130	1,933	1,539
26	7,401	8,679	7,788	6,983	7,788	10,021	15,623	6,983	3,282	2,130	1,933	1,539
27	12,467	7,338	7,788	6,628	7,338	9,153	16,254	7,338	3,282	1,933	1,933	1,539
28	3,748	6,628	9,153	7,788	7,788	9,153	16,254	7,338	3,535	1,933	1,736	1,539
29	2,233	6,273	8,679	8,206		9,153	16,254	7,338	3,282	1,933	1,736	1,933
30	1,823	5,563	8,206	7,338		8,679	14,360	6,983	3,030	2,130	1,736	2,130
31	1,823		7,788	7,338		8,206		6,983		2,130	1,736	
AVG. (m^3/s)	2,162	8,760	7,628	8,363	8,689	10,324	17,980	10,694	5,450	2,605	1,895	1,697

1996 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	2,328	1,736	6,273	9,626	7,788	11,362	17,517	25,249	7,338	3,535	2,130	1,736
2	2,525	2,525	5,563	20,515	7,788	12,467	18,937	23,671	6,983	3,535	2,130	1,736
3	2,328	3,787	4,853	60,125	7,788	11,836	25,249	22,093	6,983	3,282	2,130	1,736
4	2,130	3,030	4,853	133,347	7,788	15,623	26,038	20,515	6,628	3,282	2,130	1,736
5	2,130	3,282	4,498	116,777	7,338	17,517	25,249	19,726	6,273	2,777	1,933	1,736
6	1,933	2,777	4,498	87,583	8,206	67,857	27,064	13,729	6,273	2,777	1,933	1,736
7	1,933	10,968	4,498	51,287	10,968	66,752	22,882	18,148	5,918	2,777	2,130	2,525
8	1,736	10,494	4,142	31,956	57,915	42,845	20,515	18,148	5,918	2,777	2,130	3,282
9	1,736	6,273	4,498	22,882	31,009	32,982	19,726	16,885	5,563	2,777	1,933	3,282
10	1,736	4,853	5,918	18,937	26,038	32,982	17,517	16,885	5,563	2,777	2,130	2,525
11	1,736	3,787	7,788	16,254	19,726	33,929	17,517	15,623	5,208	2,777	2,328	2,777
12	1,736	3,535	14,992	13,729	16,885	28,011	19,726	15,623	5,208	2,777	2,328	2,328
13	1,736	3,282	11,836	13,098	15,623	26,038	18,937	14,992	5,208	2,777	2,130	2,328
14	1,736	3,030	10,494	11,836	14,992	24,460	18,148	12,467	4,853	2,525	2,130	2,130
15	1,736	2,777	9,626	11,362	14,360	23,671	21,304	11,836	4,853	2,525	1,933	2,130
16	1,736	2,777	9,153	10,494	14,360	32,982	20,515	11,836	4,853	2,525	1,933	2,130
17	1,736	2,525	8,206	10,968	14,360	29,037	18,148	11,362	4,853	2,525	1,933	2,130
18	1,736	2,525	7,338	10,968	13,729	28,011	17,517	11,362	4,853	2,525	1,933	2,130
19	1,736	2,777	7,338	10,968	14,360	23,671	16,885	10,494	4,853	3,030	1,933	2,130
20	1,736	39,846	6,983	10,494	16,885	21,304	16,885	10,021	4,853	3,535	2,130	2,130
21	1,736	44,817	6,628	9,626	14,992	20,515	15,623	9,626	4,853	2,777	2,328	2,130
22	1,736	32,982	6,628	9,626	14,360	26,038	15,623	9,626	4,142	2,777	2,130	2,130
23	1,736	33,929	6,628	9,153	14,360	29,983	15,623	10,968	4,142	2,525	2,130	2,130
24	1,736	16,254	6,628	8,679	13,729	29,983	15,623	10,968	4,142	2,525	1,933	2,130
25	1,736	12,467	6,628	8,679	13,729	22,882	14,360	10,494	4,142	2,525	1,933	2,130
26	1,736	10,494	6,983	8,206	13,098	20,515	14,992	10,021	3,787	2,525	1,933	2,130
27	1,736	9,626	7,788	8,206	13,098	19,726	16,885	9,153	3,787	2,328	1,933	2,130
28	1,736	8,679	10,968	8,206	11,362	19,726	17,517	8,679	3,787	2,328	1,933	2,130
29	1,736	7,338	11,836	7,788	10,968	19,726	20,515	8,679	3,787	2,130	1,736	2,130
30	1,933	6,983	10,968	7,788		19,726	22,093	9,153	3,787	2,130	1,736	2,130
31	1,933		10,021	7,788		19,726		7,788		2,130	1,736	
AVG. (m^3/s)	1,850	10,005	7,582	24,740	15,435	26,835	19,171	13,736	5,113	2,726	2,028	2,189

1997 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,933	2,777	6,273	7,788	4,142	4,853	6,273	10,968	6,983	3,282	2,328	1,933
2	1,933	2,777	9,626	7,338	4,142	4,853	10,021	10,968	6,628	3,282	2,328	1,933
3	1,933	2,777	10,494	7,338	3,787	4,853	15,623	21,304	6,273	3,282	2,328	1,933
4	1,933	2,525	90,739	6,983	3,535	4,853	13,729	15,623	6,273	3,030	2,328	1,933
5	1,933	2,525	41,819	6,628	3,787	4,853	11,836	13,729	6,628	3,030	2,328	1,933
6	1,933	2,328	18,148	6,628	3,787	4,498	29,037	13,729	6,628	3,030	2,130	1,933
7	1,933	2,328	13,098	6,273	3,787	4,498	27,064	13,729	6,273	3,030	2,130	1,933
8	1,933	2,328	14,360	5,918	3,787	4,498	25,249	13,729	6,628	2,777	2,130	1,933
9	1,933	2,328	22,093	13,729	3,535	4,142	23,671	13,729	6,273	2,777	2,130	1,933
10	1,933	2,328	14,360	8,679	3,535	4,142	18,148	13,729	6,273	3,030	3,282	1,933
11	2,130	2,328	11,362	7,788	3,535	3,787	15,623	13,098	6,273	3,030	2,525	1,933
12	2,130	2,328	12,467	7,788	3,535	3,787	14,360	12,467	6,628	3,030	2,777	1,933
13	2,130	2,328	13,098	7,338	3,535	3,787	13,098	11,836	6,983	3,282	2,777	1,933
14	2,130	2,130	10,968	15,623	3,535	4,142	24,460	11,362	7,338	3,030	3,030	1,933
15	2,130	2,130	10,021	13,729	3,535	4,853	25,249	10,968	7,338	2,777	3,030	1,933
16	1,933	2,130	11,362	11,362	3,535	4,498	22,093	10,968	6,628	2,777	2,328	1,933
17	1,933	2,130	10,494	9,626	3,535	4,498	18,148	10,494	6,273	2,777	2,130	1,933
18	1,933	2,130	9,626	8,679	3,535	4,498	16,885	12,467	5,918	2,777	2,328	1,933
19	1,933	2,130	9,153	7,788	4,142	4,142	15,623	11,362	5,563	2,525	2,328	1,933
20	1,933	2,130	8,206	7,788	4,142	4,142	15,623	10,494	4,853	2,525	2,328	2,130
21	1,933	2,130	8,206	7,338	7,788	4,142	16,885	10,494	4,498	2,525	2,328	2,525
22	3,535	2,130	7,788	7,338	7,338	5,918	18,937	9,626	4,142	2,328	2,328	3,030
23	6,983	2,130	7,338	6,628	6,628	6,273	19,726	9,153	3,787	2,328	2,130	2,328
24	3,787	2,130	6,983	6,273	5,918	5,918	20,515	8,679	3,787	2,328	2,130	2,130
25	6,273	2,130	7,788	6,273	5,563	5,563	19,726	8,206	3,787	2,328	2,328	2,130
26	6,628	1,933	8,206	5,918	5,208	5,208	16,885	7,788	4,142	2,328	2,328	2,130
27	4,142	1,933	8,206	5,563	5,208	5,563	16,254	7,788	3,787	2,328	3,030	2,130
28	3,535	10,021	8,679	5,208	4,853	5,918	12,467	7,788	3,787	2,328	2,328	2,777
29	3,282	7,788	12,467	4,853		5,563	11,362	7,338	3,535	2,328	2,130	2,777
30	3,030	5,563	9,626	4,498		5,563	10,968	6,983	3,535	2,130	2,130	2,328
31	2,777		8,679	4,498		5,918		7,338		2,328	2,130	
AVG. (m^3/s)	2,760	2,827	14,249	7,716	4,389	4,830	17,518	11,224	5,581	2,732	2,398	2,105

1998 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	2,328	2,777	4,853	9,153	8,679	6,983	16,254	14,992	6,273	3,535	2,130	1,933
2	2,328	2,777	7,338	8,679	8,206	6,983	15,623	14,360	6,273	3,282	2,130	1,736
3	2,525	3,030	13,729	8,206	8,206	6,628	20,515	11,836	5,918	3,282	2,130	1,736
4	3,030	3,535	11,362	7,788	8,206	6,628	20,515	10,968	5,918	3,282	3,030	1,736
5	2,130	3,535	10,494	7,338	7,788	6,628	20,515	10,494	5,918	3,030	4,142	1,736
6	2,328	3,282	9,626	6,983	9,153	6,628	21,304	10,021	5,208	3,030	3,282	1,736
7	2,130	3,282	9,153	6,628	11,836	6,628	23,671	10,021	5,208	3,282	3,282	1,736
8	2,130	3,030	9,153	5,918	12,467	6,628	22,882	8,679	5,563	3,282	3,282	1,736
9	2,130	2,777	11,362	5,563	10,968	6,273	23,671	8,679	5,918	2,777	3,282	1,736
10	1,933	2,777	10,968	5,563	10,021	6,273	25,249	9,153	6,628	2,777	2,525	1,736
11	1,933	2,525	10,021	5,563	9,626	6,273	25,249	8,679	5,918	2,525	2,130	1,736
12	1,933	2,525	9,153	5,208	9,153	6,628	28,011	8,206	5,563	2,525	1,933	1,736
13	1,933	2,525	8,679	5,208	8,679	6,628	23,671	8,206	5,563	2,777	1,933	1,736
14	1,933	2,328	8,206	5,208	8,679	6,273	20,515	8,206	5,208	2,525	1,933	1,736
15	2,130	2,328	18,148	5,208	8,206	5,918	16,254	8,679	4,853	2,525	1,933	1,736
16	1,736	2,328	59,020	5,208	7,788	7,338	14,992	9,153	4,853	2,525	1,933	1,736
17	1,736	2,525	31,956	5,208	7,338	8,679	14,360	8,206	4,853	2,525	1,933	1,736
18	3,282	3,787	22,882	5,208	7,338	12,467	13,098	7,788	4,853	2,328	1,933	1,736
19	4,498	5,918	17,517	5,208	6,983	11,362	11,836	8,679	4,853	2,328	1,933	1,736
20	5,918	24,460	13,729	4,853	6,983	10,494	12,467	13,729	4,853	2,525	1,933	1,736
21	17,517	27,064	11,836	4,853	6,983	10,021	11,362	24,460	4,853	2,328	1,933	1,736
22	10,494	18,937	10,968	4,853	6,983	10,968	10,968	14,360	4,853	2,328	1,933	1,933
23	7,788	12,467	10,494	6,983	6,983	13,098	10,021	9,153	4,853	2,525	1,933	1,933
24	6,983	10,021	9,153	7,788	7,338	13,729	9,153	8,206	4,498	2,525	1,933	1,933
25	5,918	8,679	8,679	11,836	7,338	11,836	9,153	7,338	4,142	2,525	1,933	1,933
26	5,563	7,338	8,206	10,021	7,338	10,968	13,098	6,983	4,142	2,525	1,933	1,933
27	5,918	6,628	7,788	8,679	7,338	11,836	46,869	6,983	4,142	2,525	1,933	1,736
28	3,787	6,273	7,338	8,206	6,983	14,360	25,249	6,983	4,142	2,525	1,933	1,933
29	3,030	5,918	7,338	10,968		14,360	18,937	6,628	4,142	2,328	1,933	1,736
30	3,030	5,208	9,153	10,021		17,517	16,254	6,273	3,787	2,525	1,933	1,736
31	3,030		10,021	9,153		16,885		6,273		2,328	1,933	
AVG. (m^3/s)	3,970	6,353	12,849	7,008	8,342	9,481	18,724	9,754	5,125	2,699	2,258	1,782

1999 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,736	2,777	4,498	13,729	24,460	11,836	20,515	10,968	4,498	3,030	2,328	1,933
2	1,933	2,777	3,535	13,098	18,937	12,467	18,148	10,968	4,142	3,030	2,328	1,933
3	1,933	2,525	3,282	12,467	16,254	13,729	17,517	10,968	4,142	3,030	2,130	1,736
4	1,933	2,328	3,030	11,836	14,360	13,098	16,885	10,494	4,142	3,030	2,130	1,736
5	1,933	2,130	2,777	11,362	12,467	13,098	15,623	10,021	4,142	3,030	2,130	1,736
6	1,933	2,130	2,777	10,968	11,362	12,467	14,992	9,153	3,787	2,525	2,130	1,736
7	1,933	1,933	6,983	9,626	14,360	13,098	22,882	10,021	4,142	2,328	2,130	1,736
8	1,736	1,933	6,628	9,153	19,726	13,729	20,515	9,153	3,787	2,328	2,130	1,736
9	1,736	1,933	8,206	8,679	21,304	14,992	18,937	8,206	3,787	2,328	2,130	1,736
10	1,736	1,933	61,229	8,206	19,726	13,729	18,937	7,788	4,498	2,328	1,933	1,736
11	1,736	1,933	27,064	7,338	17,517	11,836	18,937	7,338	4,853	2,130	1,933	1,736
12	1,736	1,933	14,360	7,788	16,254	11,362	21,304	7,338	4,498	2,130	1,933	1,736
13	1,736	1,933	10,021	7,788	14,992	11,362	19,726	7,338	5,208	2,130	1,933	1,736
14	1,933	3,535	8,206	7,338	14,360	11,836	16,885	6,983	4,853	1,933	1,933	1,736
15	1,933	4,853	7,338	7,338	14,360	11,836	16,885	6,983	5,918	1,933	1,933	1,736
16	1,933	4,853	8,206	7,338	13,729	10,968	16,885	6,983	4,853	1,933	1,933	1,736
17	1,933	3,535	7,788	7,788	13,098	10,021	16,885	6,983	4,498	2,328	1,933	1,736
18	1,933	3,282	11,362	7,338	14,992	10,021	18,148	6,628	4,142	2,130	1,933	1,736
19	1,933	2,777	16,254	7,788	14,992	9,626	18,148	6,628	3,787	2,130	1,933	1,736
20	1,933	2,777	77,957	7,338	14,360	12,467	16,885	5,918	3,535	2,130	1,933	1,736
21	1,933	2,525	28,011	6,983	13,098	13,098	14,992	5,918	3,282	2,130	1,933	1,736
22	1,736	2,328	19,726	6,628	11,836	14,360	14,992	5,563	3,030	2,130	2,130	1,736
23	1,736	2,328	14,992	6,628	11,362	13,098	13,098	5,563	3,030	2,130	2,328	1,736
24	1,736	2,328	13,729	6,628	13,729	12,467	13,098	5,563	3,030	2,130	2,328	1,736
25	1,933	2,130	44,817	6,273	18,937	11,836	12,467	5,563	3,030	2,525	2,328	1,736
26	1,933	2,130	29,983	6,273	14,360	11,362	13,098	5,918	3,535	2,525	2,328	1,539
27	1,933	2,328	22,882	6,273	13,098	10,968	13,098	5,563	4,142	2,525	2,328	1,539
28	2,328	2,525	18,937	6,273	12,467	10,494	12,467	5,208	3,282	2,525	2,130	1,539
29	10,021	2,777	16,885	11,362		10,494	11,836	4,853	3,030	2,525	1,933	1,539
30	4,853	6,628	16,254	27,064		10,021	11,362	4,853	3,030	2,777	1,736	1,539
31	3,282		14,992	50,183		18,148		4,853		2,525	1,736	
AVG. (m^3/s)	2,281	2,728	17,184	10,480	15,375	12,256	16,538	7,299	3,988	2,398	2,067	1,716

2000 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,539	2,130	1,539	2,777	3,787	10,494	17,517	20,515	7,788	2,525	2,328	2,328
2	1,539	2,130	1,539	2,525	3,787	9,626	17,517	17,517	7,338	2,525	2,328	1,933
3	1,539	2,130	1,539	3,030	4,142	9,153	18,148	14,992	8,206	2,525	2,328	1,933
4	1,539	2,130	1,539	3,282	4,853	10,021	17,517	14,992	7,338	2,525	2,328	1,933
5	1,539	2,130	1,539	4,498	6,628	10,494	17,517	44,817	6,628	2,525	2,130	1,933
6	1,539	1,933	1,539	3,787	5,918	10,494	16,885	37,874	6,628	2,525	2,130	1,736
7	1,933	1,933	1,539	4,142	5,208	12,467	14,360	29,983	6,628	2,328	2,130	2,130
8	1,933	1,933	1,539	10,021	5,208	10,494	16,885	28,011	6,273	2,328	2,130	1,933
9	1,933	1,933	1,539	6,628	5,563	9,626	16,885	23,671	5,918	2,328	2,130	1,933
10	1,933	1,736	1,539	4,853	5,918	10,021	11,362	20,515	5,563	2,328	2,130	1,736
11	2,130	1,736	1,539	4,142	6,628	10,494	10,021	17,517	4,853	2,328	2,130	1,736
12	2,130	1,736	1,539	3,535	6,628	11,836	10,021	16,254	4,498	2,328	2,130	1,736
13	2,130	1,736	1,539	3,535	6,983	11,836	11,362	15,623	4,498	2,328	2,130	1,736
14	2,130	1,736	1,539	3,282	7,338	11,836	13,729	13,729	4,142	2,130	2,130	1,736
15	2,328	1,736	1,933	3,030	7,338	11,836	11,836	13,098	4,142	2,130	2,130	2,328
16	2,328	1,736	1,736	2,777	9,626	11,362	11,836	12,467	4,142	2,130	1,933	2,130
17	2,328	1,539	1,736	2,777	8,679	11,836	11,362	13,098	3,787	2,130	1,933	2,328
18	2,130	1,539	1,736	3,282	8,206	13,729	11,362	10,968	4,142	2,130	1,933	2,130
19	2,130	1,539	1,736	3,282	10,968	12,467	15,623	10,021	3,535	2,130	1,933	1,933
20	2,130	1,539	1,736	3,535	13,098	12,467	94,684	9,153	3,030	2,130	1,933	1,933
21	2,130	1,539	1,736	3,282	11,836	10,968	46,869	9,153	2,777	2,130	1,933	1,736
22	2,130	1,539	1,736	3,282	46,869	10,968	38,900	9,153	2,525	1,933	1,933	1,736
23	2,130	1,539	1,736	3,282	31,009	10,968	32,982	9,153	2,525	1,933	1,933	1,736
24	2,130	1,539	1,736	3,535	20,515	10,968	28,011	10,021	2,525	1,933	1,933	1,736
25	2,130	1,539	1,736	4,498	16,254	10,494	22,882	13,729	2,525	1,933	2,525	1,736
26	2,130	1,539	1,736	5,208	14,360	10,494	22,882	13,098	2,525	1,933	2,777	1,933
27	2,130	1,539	1,736	4,498	13,098	11,362	20,515	10,494	2,525	2,328	2,525	1,736
28	2,130	1,539	2,328	3,787	11,836	13,098	22,882	9,626	2,525	2,525	2,130	1,736
29	2,130	1,539	10,021	3,787	10,968	14,992	25,249	9,153	2,328	2,328	2,328	1,736
30	2,130	1,539	4,498	3,787		15,623	21,304	8,679	2,328	2,328	2,328	1,736
31	2,130		3,282	3,787		17,517		8,206		2,328	2,328	
AVG. (m^3/s)	2,009	1,736	2,079	3,918	10,802	11,614	21,630	15,977	4,473	2,258	2,164	1,894

2001 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,736	1,933	6,983	2,525	1,933	4,853	3,282	3,535	4,971	2,170	1,641	1,468
2	1,736	1,933	5,918	2,525	2,130	5,208	3,535	3,535	4,411	1,996	1,641	1,468
3	1,736	1,933	5,208	2,525	2,777	5,208	3,535	3,282	4,150	1,996	1,641	1,468
4	1,736	1,933	4,853	2,328	2,777	4,853	3,282	3,282	4,150	1,996	1,641	1,468
5	1,736	1,736	4,498	2,328	2,525	4,853	3,282	3,282	4,150	1,996	1,641	1,468
6	1,736	1,736	4,142	2,777	2,328	5,208	4,142	2,777	4,411	1,996	1,996	1,468
7	1,736	1,736	3,787	2,777	2,328	5,208	3,282	6,628	4,411	1,996	1,996	2,967
8	3,282	1,736	3,535	2,777	2,328	5,208	4,498	10,968	4,671	1,815	1,641	3,898
9	1,933	1,736	3,535	2,777	2,328	5,208	3,282	8,679	4,671	1,815	1,468	1,996
10	2,130	1,736	3,282	2,777	2,328	4,853	3,282	10,494	4,671	1,815	1,468	1,996
11	1,933	1,736	3,030	2,777	2,328	4,498	4,498	14,360	4,411	1,815	1,468	1,641
12	1,933	1,736	2,777	2,777	2,328	4,142	5,918	18,937	4,150	1,641	1,468	1,641
13	1,933	1,736	2,525	2,777	2,328	3,787	5,918	18,148	3,898	1,641	1,468	1,815
14	1,933	1,736	2,328	2,777	3,030	3,787	5,208	92,317	3,637	1,641	1,468	1,815
15	1,933	1,736	2,328	2,777	3,282	4,498	5,918	36,138	3,637	1,641	1,468	1,815
16	1,736	1,736	2,130	2,777	4,142	4,142	5,918	26,985	3,377	1,641	1,468	1,815
17	1,736	1,736	2,130	2,525	4,142	3,787	6,628	20,436	3,377	1,641	1,468	1,641
18	1,736	1,736	2,130	2,525	3,787	3,535	5,208	17,517	3,377	1,641	1,468	1,641
19	1,736	1,736	2,328	2,525	3,787	3,535	4,498	15,150	3,377	1,641	1,468	1,641
20	1,933	1,736	2,328	2,525	4,853	3,535	4,498	13,019	3,172	1,641	1,641	1,468
21	2,130	1,736	2,328	2,525	4,853	3,787	4,142	11,520	2,967	1,641	1,468	1,468
22	1,933	1,736	2,130	2,328	4,498	3,787	3,787	10,021	2,967	1,641	1,468	1,468
23	1,933	1,736	2,130	2,328	4,498	4,853	3,787	9,626	2,754	1,641	1,468	1,468
24	1,933	1,736	2,328	2,328	4,498	4,853	4,498	8,837	2,754	1,641	1,468	1,468
25	2,130	1,736	2,328	2,130	4,853	4,142	5,918	7,669	2,549	1,641	1,468	1,468
26	2,130	1,736	2,130	2,130	5,918	3,787	5,208	6,912	2,549	1,641	1,468	1,468
27	2,130	1,736	2,130	2,130	5,208	3,787	4,853	6,533	2,549	1,641	1,468	1,468
28	2,130	11,362	2,130	2,130	4,853	3,787	4,498	6,154	2,549	1,641	1,468	1,468
29	2,130	22,882	2,130	2,130		3,787	3,787	6,154	2,549	1,641	1,468	1,468
30	2,130	16,254	2,130	2,130		3,535	3,787	5,563	2,170	1,641	1,468	1,468
31	1,933		2,777	1,933		3,535		5,263		1,641	1,468	
AVG. (m^3/s)	1,957	3,272	3,047	2,487	3,463	4,308	4,463	13,346	3,581	1,749	1,541	1,709

2002 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,468	1,641	13,019	28,484	9,863	13,335	48,605	16,333	7,804	3,716	2,359	1,996
2	1,468	1,641	34,244	40,083	10,889	13,335	67,857	15,702	7,804	3,716	2,359	1,996
3	1,468	1,641	74,485	37,243	11,836	13,808	38,978	15,071	7,062	3,716	2,359	1,996
4	1,468	1,815	29,510	29,352	12,309	15,702	32,350	16,333	6,691	3,464	2,722	1,996
5	1,468	1,468	18,069	31,956	12,861	16,333	32,350	16,964	6,691	3,464	2,975	1,996
6	1,641	1,468	15,702	28,484	12,861	16,333	32,350	16,333	6,320	3,464	2,722	1,996
7	1,468	1,468	57,915	23,908	12,861	15,071	32,350	15,071	5,949	3,219	2,541	1,996
8	1,468	1,468	93,895	20,120	12,861	15,702	30,457	14,439	6,320	3,219	2,541	1,996
9	1,468	1,468	112,832	18,227	12,861	16,333	26,985	13,335	5,949	3,219	2,541	1,996
10	1,468	1,815	50,656	15,702	12,861	16,964	25,012	12,861	5,949	3,219	2,541	1,996
11	1,468	1,641	36,138	13,808	32,824	15,071	25,012	11,836	5,578	3,219	2,541	3,464
12	1,468	1,468	45,606	12,309	23,908	13,335	26,985	12,861	5,578	4,213	2,359	5,578
13	1,468	1,468	50,656	11,836	19,489	13,335	28,563	12,309	5,208	3,969	2,359	5,578
14	1,468	1,468	34,244	11,362	16,964	13,808	34,244	12,309	4,955	4,466	3,219	4,466
15	1,641	1,468	27,616	11,362	15,702	13,808	34,244	10,889	4,955	4,213	2,541	4,213
16	1,641	1,468	23,671	11,836	15,071	13,808	31,404	10,889	4,711	3,464	6,320	4,711
17	1,641	1,468	24,381	11,362	14,439	13,335	31,404	10,415	4,466	3,219	7,804	4,466
18	1,641	1,468	32,350	11,362	13,335	12,861	32,350	10,415	4,466	2,975	4,955	3,716
19	1,641	1,468	36,138	11,362	12,861	11,836	37,085	9,863	4,466	2,722	3,464	3,219
20	1,468	1,468	26,985	11,362	12,309	11,362	23,119	9,863	4,213	2,722	2,975	2,722
21	1,468	2,343	23,671	10,889	11,836	10,415	20,120	9,863	3,969	2,722	2,722	2,359
22	1,468	1,996	22,409	10,415	10,889	8,916	20,120	9,390	3,969	2,722	2,722	2,178
23	1,468	1,815	21,067	9,863	10,889	8,206	20,909	8,916	4,213	2,722	2,541	2,178
24	1,468	1,641	19,252	8,916	20,120	10,889	20,120	9,863	4,213	2,722	2,541	2,178
25	1,641	3,377	18,700	8,916	18,858	43,713	18,858	8,916	4,213	2,722	2,178	1,996
26	1,641	3,172	41,819	8,522	16,333	38,032	17,596	8,522	4,213	2,722	2,178	1,996
27	1,641	2,754	40,872	8,522	14,439	29,510	16,964	8,916	4,213	2,722	2,178	1,996
28	1,815	2,549	77,799	8,916	13,808	25,012	16,333	8,522	4,213	2,541	2,178	1,996
29	1,815	2,549	85,216	8,916		23,040	16,333	8,206	4,213	2,541	2,178	1,815
30	1,641	3,172	41,030	8,916		20,436	15,702	8,206	3,969	2,541	2,178	1,815
31	1,641		31,956	8,916		19,252		7,804		2,359	2,178	
AVG. (m^3/s)	1,552	1,870	40,707	15,911	14,862	16,868	28,492	11,652	5,218	3,182	2,902	2,753

2003 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,815	1,996	2,178	2,541	2,975	4,466	9,626	11,836	26,827	3,716	2,178	1,681
2	1,815	1,996	2,178	3,464	3,464	4,711	10,021	11,362	20,909	3,464	2,178	1,681
3	1,815	1,996	2,178	4,213	8,206	5,208	10,021	10,968	18,227	3,464	2,178	1,681
4	1,815	1,996	2,178	4,213	8,916	5,578	16,254	10,494	13,808	3,464	2,178	1,681
5	1,815	1,996	2,178	4,955	7,062	5,949	22,093	10,494	11,836	3,219	2,178	1,815
6	1,815	1,996	2,359	4,711	7,804	6,691	21,304	9,626	10,415	3,219	2,178	1,815
7	1,815	1,996	2,541	4,213	11,362	7,433	16,254	9,626	9,390	3,969	2,178	1,815
8	1,815	1,996	2,541	3,969	12,861	8,206	14,992	8,206	8,522	3,464	1,996	1,815
9	1,815	1,996	2,541	3,716	9,390	10,889	14,360	7,788	8,206	3,464	1,996	1,815
10	1,996	6,320	2,722	3,464	7,804	10,889	13,729	7,338	7,804	3,219	1,996	1,681
11	1,996	4,213	2,541	3,464	6,691	9,863	13,729	6,983	7,804	3,219	1,996	1,681
12	1,996	3,969	2,541	3,219	5,949	8,916	13,729	6,628	8,916	3,219	1,996	1,815
13	1,996	3,464	2,359	2,975	6,691	8,522	13,729	6,273	11,362	3,219	1,996	1,815
14	1,996	3,464	2,359	2,975	5,949	8,206	13,729	6,273	9,390	2,975	1,996	1,815
15	2,178	3,219	2,359	2,975	5,578	7,804	15,623	6,273	8,522	2,975	1,996	1,681
16	2,359	3,219	2,359	2,722	5,208	8,206	16,885	6,273	8,206	2,722	1,996	1,681
17	2,178	2,975	2,178	2,541	5,208	10,415	16,254	6,628	7,804	2,722	1,815	1,996
18	1,996	2,975	2,178	2,541	5,578	15,071	14,992	5,918	7,433	2,722	1,815	2,359
19	1,996	2,722	2,178	2,541	5,949	16,333	23,671	5,918	7,062	2,722	1,815	2,178
20	3,716	2,722	2,359	2,541	5,578	12,467	31,009	5,563	6,320	2,722	1,815	1,996
21	7,433	2,541	2,178	2,541	5,208	10,494	22,093	5,208	5,578	2,722	1,815	1,996
22	2,359	2,541	2,178	2,359	4,955	9,626	17,517	5,563	4,955	2,722	1,815	1,996
23	1,996	2,359	1,996	2,359	4,955	8,679	16,254	5,208	4,955	2,541	1,815	1,996
24	1,996	2,359	2,178	2,359	4,711	8,206	14,992	4,853	4,466	2,541	1,815	1,996
25	1,996	2,359	2,178	2,359	4,955	14,360	14,992	4,853	4,213	2,541	1,815	1,815
26	1,996	2,359	1,996	2,178	4,466	15,623	16,885	4,498	4,213	2,541	1,815	1,815
27	1,996	2,359	1,996	2,359	4,466	13,098	14,360	4,853	3,969	2,541	1,681	1,815
28	1,996	2,359	1,996	2,541	4,466	11,836	14,360	5,563	3,969	2,541	1,681	1,815
29	1,996	2,178	2,178	2,359		11,362	13,098	5,918	3,969	2,359	1,815	1,815
30	1,996	2,178	2,359	2,359		10,968	11,836	50,183	3,716	2,359	1,681	1,815
31	1,996		2,541	2,541		10,021		31,088		2,359	1,681	
AVG. (m^3/s)	2,209	2,694	2,283	3,041	6,300	9,681	15,946	9,299	8,759	2,956	1,932	1,846

2004 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,996	3,219	2,359	2,975	30,220	23,908	11,362	6,983	4,853	2,328	1,933	1,539
2	1,996	2,541	2,359	2,975	23,908	28,484	10,968	6,983	4,142	2,328	1,933	1,539
3	1,996	2,359	2,178	3,969	20,120	27,616	10,494	7,338	4,142	2,328	1,933	1,404
4	1,996	2,178	1,996	5,949	17,596	28,484	9,626	6,983	4,142	2,328	1,933	1,404
5	1,996	2,178	1,996	22,409	15,702	44,817	9,153	6,983	4,142	2,328	1,933	1,404
6	1,996	2,178	1,996	15,071	15,702	42,924	8,679	7,338	3,787	2,130	1,933	1,404
7	1,996	2,178	1,996	15,702	17,596	26,038	8,679	7,338	3,787	1,933	1,933	1,404
8	1,815	1,996	2,178	9,863	18,227	20,515	8,679	7,338	3,787	1,933	1,539	1,404
9	1,815	1,996	3,969	8,206	16,806	16,885	8,679	6,983	3,787	1,933	1,539	1,278
10	1,996	2,359	2,975	7,062	18,858	15,623	8,679	6,628	3,787	1,933	1,539	1,278
11	1,996	4,466	2,722	5,949	18,858	13,729	8,679	9,626	3,535	1,933	1,539	1,278
12	1,815	3,716	2,359	7,804	17,596	12,467	9,153	9,153	3,535	1,933	1,539	1,278
13	1,815	3,219	2,359	8,206	24,618	11,836	9,626	7,338	3,282	1,933	1,539	1,278
14	1,815	2,975	2,359	8,206	23,908	11,362	10,021	6,628	3,282	1,933	1,539	1,278
15	1,815	2,722	2,178	7,804	18,227	10,968	10,021	6,273	3,282	1,933	1,539	1,278
16	1,815	2,722	4,213	9,863	15,702	10,021	8,679	6,273	3,282	1,933	1,539	1,278
17	1,815	2,541	31,956	29,352	13,808	9,626	7,788	5,918	3,030	1,933	1,539	1,278
18	1,815	2,541	24,618	17,596	12,861	9,626	6,983	5,563	3,030	1,933	1,539	1,278
19	1,815	2,541	12,861	13,335	12,861	9,153	6,628	5,918	3,030	1,933	1,539	1,278
20	1,815	2,541	10,415	11,362	14,439	9,153	6,273	5,918	3,030	1,933	1,539	1,278
21	1,815	2,359	8,522	9,863	14,439	9,626	6,983	5,563	3,030	1,933	1,539	1,278
22	1,996	2,359	6,691	20,120	12,648	10,494	10,021	5,208	3,030	1,933	1,539	1,404
23	1,996	2,359	4,955	54,601	11,836	11,362	8,679	4,853	2,777	1,736	1,539	1,404
24	1,815	2,359	3,969	23,908	11,362	11,836	9,153	4,853	2,777	1,736	1,539	1,404
25	1,815	2,541	3,464	19,489	10,415	13,729	8,206	4,853	2,777	2,328	1,539	1,404
26	1,815	2,541	3,716	20,909	10,415	14,360	7,788	4,853	2,777	2,130	1,539	1,404
27	1,815	2,541	3,716	18,227	11,836	13,098	7,788	4,853	2,777	2,130	1,539	1,404
28	1,815	2,541	3,464	16,964	12,861	13,729	8,206	4,853	2,525	2,130	1,539	1,404
29	1,996	2,359	3,219	15,071	16,964	14,360	7,338	4,498	2,525	2,130	1,539	1,404
30	1,996	2,541	3,219	14,439	0,000	14,992	7,338	4,498	2,328	1,933	1,539	1,404
31	2,359	0,000	2,975	21,620	0,000	13,729	0,000	5,563	0,000	1,933	1,539	0,000
AVG. (m^3/s)	1,908	2,589	5,418	14,480	16,565	16,921	8,678	6,256	3,333	2,029	1,628	1,359

2005 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,278	1,539	2,130	2,130	2,328	5,563	5,918	6,628	5,918	1,278	1,539	1,278
2	1,404	1,539	2,130	2,130	2,328	5,563	11,362	5,563	4,853	1,278	1,933	1,278
3	1,278	1,539	2,130	1,736	2,328	6,628	9,153	4,853	4,853	1,278	1,933	1,278
4	1,278	1,404	2,130	1,736	3,535	7,338	8,206	4,853	4,853	1,278	1,539	1,278
5	1,278	1,278	2,130	1,539	3,282	6,273	7,338	4,853	4,853	1,278	1,539	1,278
6	1,278	1,278	2,130	1,539	3,030	5,918	6,983	4,498	4,142	1,278	1,539	1,278
7	1,278	1,278	2,130	1,539	3,030	5,563	6,628	4,498	3,787	1,278	1,539	1,278
8	1,539	1,278	2,130	1,539	3,030	6,273	6,273	4,498	2,399	1,278	1,539	1,278
9	1,539	2,525	1,933	1,539	3,030	6,628	5,918	4,498	2,399	1,404	1,404	1,278
10	1,539	2,328	1,933	1,539	2,777	6,628	5,918	4,142	2,777	1,404	1,404	1,278
11	1,404	2,130	1,933	1,539	2,777	6,273	5,918	3,787	2,777	1,404	1,404	1,278
12	1,404	2,130	1,933	1,539	2,777	5,918	5,918	3,787	2,777	1,404	1,404	1,278
13	1,404	1,933	1,933	1,539	2,777	5,563	5,563	3,787	2,525	1,404	1,404	1,278
14	1,404	1,933	1,736	1,539	2,525	5,208	5,918	3,535	2,525	1,404	1,278	1,278
15	1,404	1,736	1,736	1,539	2,777	4,853	5,208	3,282	2,328	1,404	1,278	1,278
16	1,404	1,736	1,736	1,539	2,777	4,498	4,853	3,282	2,328	1,404	1,278	1,278
17	1,404	1,736	1,736	1,736	3,030	4,498	4,142	3,030	2,328	1,539	1,278	1,278
18	1,404	1,539	1,736	1,736	3,282	4,142	3,787	2,777	2,130	1,539	1,278	1,278
19	1,404	1,539	1,736	1,736	4,853	4,142	4,498	2,777	2,130	1,404	1,278	1,278
20	1,404	1,539	1,539	1,736	9,626	4,498	4,498	2,525	1,933	1,404	1,278	1,278
21	1,404	2,525	1,539	1,736	7,338	4,853	4,142	2,525	1,933	1,404	1,278	1,144
22	1,404	3,282	1,736	1,736	6,628	4,853	4,853	2,328	1,933	1,404	1,278	1,144
23	1,404	2,777	1,933	1,933	5,918	4,498	14,992	2,328	1,933	1,404	1,278	1,278
24	1,404	2,525	2,130	1,736	5,208	4,142	10,021	2,328	1,539	1,404	1,278	1,278
25	1,404	2,525	2,130	1,736	5,208	3,787	7,788	2,328	1,539	1,404	1,278	1,404
26	1,404	2,525	2,328	1,736	4,853	3,787	6,628	2,525	1,539	1,404	1,278	1,278
27	1,404	2,328	2,130	1,736	4,498	3,787	6,273	2,525	1,539	1,404	1,278	1,278
28	1,404	2,130	2,130	1,736	4,498	3,787	6,983	2,525	1,404	1,404	1,278	1,278
29	1,539	2,130	2,130	1,933	0,000	4,498	6,273	4,853	1,404	1,404	1,278	1,278
30	1,539	2,130	2,130	2,130	0,000	4,498	6,983	4,498	1,404	1,404	1,278	1,278
31	1,539	0,000	2,130	2,328	0,000	4,498	0,000	6,628	0,000	1,404	1,278	0,000
AVG. (m^3/s)	1,406	1,960	1,971	1,730	3,930	5,127	6,631	3,769	2,693	1,381	1,391	1,274

2006 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,278	1,736	3,030	2,777	3,535	6,983	9,153	4,498	2,777	2,777	1,215	1,081
2	1,278	2,130	2,777	2,777	3,535	6,983	14,992	4,498	2,777	2,328	1,215	1,081
3	1,278	2,130	2,777	2,525	3,535	7,338	11,836	4,853	2,777	2,328	1,215	1,081
4	1,278	9,153	3,030	2,525	3,535	7,338	10,494	4,853	2,777	2,328	1,215	1,081
5	1,278	7,338	2,777	2,525	3,535	7,338	10,021	4,498	2,777	2,328	1,215	1,081
6	1,278	4,853	2,525	2,525	3,535	7,338	9,153	4,498	2,525	2,525	1,215	1,081
7	1,278	4,142	2,525	2,525	6,628	7,338	9,153	4,142	2,525	2,328	1,215	1,081
8	1,278	3,787	2,328	2,525	19,726	8,206	9,626	3,787	2,525	1,933	1,215	1,081
9	1,278	3,535	2,130	2,328	18,937	14,360	9,626	4,498	2,525	1,736	1,215	1,081
10	1,278	3,535	2,130	2,130	11,836	11,362	11,836	4,142	2,328	1,736	1,215	1,081
11	1,278	3,535	1,933	2,130	13,098	10,021	10,494	3,787	2,328	1,539	1,215	1,081
12	1,278	3,282	1,933	2,130	14,360	9,626	9,626	3,535	2,328	1,736	1,215	1,081
13	1,278	3,282	1,933	2,130	15,623	8,679	9,626	3,787	2,328	1,736	1,215	1,081
14	1,278	3,030	1,736	2,130	13,729	9,626	9,153	3,787	2,328	1,404	1,349	1,081
15	1,278	2,777	1,736	1,933	11,362	12,467	8,679	3,535	2,328	1,404	1,081	1,081
16	1,736	2,777	2,130	1,933	9,626	12,467	9,153	3,535	2,130	1,404	1,215	1,081
17	2,328	2,777	1,933	1,933	8,679	13,098	8,206	3,535	2,130	1,278	0,947	1,081
18	1,933	2,525	2,777	1,933	7,788	13,098	7,788	3,535	1,933	1,278	0,947	1,081
19	1,736	2,777	18,937	1,933	6,983	14,360	6,983	3,535	1,933	1,278	0,947	1,081
20	1,736	3,787	10,968	2,130	6,628	12,467	6,983	3,282	1,933	1,278	0,947	1,081
21	1,736	10,021	8,679	1,933	6,273	11,362	6,628	3,282	1,933	1,278	0,947	1,081
22	1,736	7,338	6,983	1,933	6,628	10,968	6,273	4,498	1,933	1,278	0,947	1,081
23	1,539	5,918	5,918	2,130	6,983	10,968	6,628	6,944	1,933	1,278	0,947	1,349
24	1,539	4,853	5,208	2,130	7,338	11,836	5,918	3,787	1,933	1,278	0,947	1,618
25	1,539	4,142	4,498	3,030	7,338	13,098	5,563	3,535	1,933	1,278	0,947	2,643
26	1,539	3,535	3,787	5,208	7,338	12,467	5,208	3,282	1,933	1,278	0,947	2,028
27	1,539	3,535	3,535	5,918	7,338	10,968	4,853	3,282	1,933	1,278	1,081	1,823
28	1,539	3,535	3,535	4,853	6,983	10,021	4,498	3,282	2,328	1,278	1,081	1,618
29	1,539	3,282	3,282	4,498	0,000	9,626	4,498	3,030	3,282	1,215	1,081	1,618
30	1,933	3,030	3,030	4,142	0,000	9,626	4,498	3,030	3,030	1,215	1,081	1,618
31	1,933	0,000	3,030	3,787	0,000	10,021	0,000	2,777	0,000	1,215	1,081	0,000
AVG. (m^3/s)	1,508	4,069	3,985	2,743	8,658	10,369	8,238	3,898	2,339	1,631	1,107	1,270

2007 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	2,028	57,915	2,359	2,178	1,815	4,213	4,466	3,464	2,541	1,278	1,042	1,144
2	1,483	41,030	2,178	2,178	1,815	4,213	4,213	3,464	2,541	1,278	1,042	1,144
3	1,483	16,964	2,178	2,178	1,815	4,213	4,213	3,464	2,541	1,278	1,042	1,144
4	1,349	24,618	2,178	2,359	1,996	4,466	3,969	3,716	2,541	1,278	1,042	1,042
5	1,349	17,596	2,178	2,178	2,178	4,466	3,969	3,464	2,359	1,278	0,947	1,042
6	1,349	12,309	2,178	1,996	2,359	4,466	3,969	3,464	2,359	1,278	0,844	1,042
7	1,349	8,916	2,178	1,996	2,178	4,213	3,716	3,464	2,359	1,144	0,844	1,042
8	1,349	7,062	2,178	1,996	2,178	4,213	3,969	3,464	2,359	1,144	0,844	1,042
9	1,349	5,949	2,178	1,996	2,178	4,213	3,969	3,464	2,541	1,144	0,947	1,042
10	1,349	5,208	2,178	1,996	2,178	3,969	3,716	3,464	2,722	1,278	0,947	1,042
11	1,349	4,711	2,178	1,996	2,359	3,969	3,716	4,711	2,722	1,278	0,947	1,042
12	1,349	4,466	2,178	1,996	2,541	3,716	3,464	10,415	3,464	1,042	0,947	1,042
13	1,349	4,213	2,178	1,996	2,722	3,716	3,464	10,889	2,541	1,042	0,947	1,042
14	1,349	3,969	2,178	1,996	3,464	3,969	3,219	8,206	2,359	1,042	0,947	1,042
15	1,483	3,716	2,178	1,996	16,609	3,969	3,219	5,949	2,178	1,042	0,947	1,042
16	1,618	3,464	2,178	1,996	9,390	3,969	3,219	4,955	1,996	1,042	0,947	1,042
17	1,483	3,464	2,178	1,996	7,804	3,716	2,975	4,711	1,996	1,042	0,947	1,042
18	1,483	3,219	2,178	1,996	6,691	3,716	2,975	7,062	1,996	0,947	0,947	1,042
19	1,483	2,975	2,178	1,815	5,578	3,969	2,975	7,062	1,996	0,947	0,947	1,042
20	4,750	2,975	2,178	1,815	5,208	4,466	2,975	5,949	1,815	0,947	0,947	1,042
21	2,919	2,722	2,178	1,815	4,955	3,969	2,722	4,955	1,815	0,947	0,947	1,042
22	2,643	2,722	2,178	1,815	4,955	3,969	2,722	4,711	1,547	0,947	0,947	1,042
23	2,643	2,722	2,359	1,815	4,955	3,969	2,722	4,213	1,547	0,947	0,844	1,042
24	2,438	2,541	2,359	1,815	4,711	6,691	2,975	3,969	1,412	0,947	0,844	1,042
25	2,438	2,541	2,359	1,815	4,711	7,804	2,975	3,716	1,412	0,947	1,042	1,042
26	2,438	2,359	2,359	1,815	4,466	6,320	2,975	3,464	1,278	0,947	2,178	1,144
27	2,233	2,359	2,178	1,815	4,213	5,949	2,975	3,219	1,278	1,042	1,815	1,144
28	2,233	2,359	1,996	1,815	4,466	5,208	2,975	3,219	1,278	1,042	1,412	1,042
29	2,233	2,359	2,178	1,996	0,000	4,955	3,219	3,219	1,278	0,947	1,412	1,042
30	2,233	2,359	2,178	1,815	0,000	4,711	3,716	2,975	1,278	0,947	1,278	1,042
31	24,618	0,000	2,178	1,815	0,000	4,466	0,000	2,722	0,000	1,042	1,144	0,000
AVG. (m^3/s)	2,620	8,659	2,201	1,961	4,303	4,511	3,412	4,683	2,068	1,079	1,060	1,059

2008 WATER YEAR
DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,042	1,278	1,815	2,975	1,996	5,949	7,804	2,975	2,541	1,278	0,844	0,947
2	1,042	1,278	1,815	2,975	1,996	5,949	7,062	2,722	2,541	1,278	0,746	0,844
3	1,042	1,278	1,681	2,975	1,996	6,691	6,320	2,975	2,722	1,278	0,844	0,844
4	1,144	1,278	1,681	2,975	1,996	5,949	5,578	2,975	2,541	1,278	0,844	0,844
5	1,412	1,278	1,681	2,722	1,996	5,949	5,578	2,975	2,359	1,144	0,947	0,844
6	1,412	1,547	23,119	2,541	1,996	6,691	5,208	3,716	2,178	1,144	0,844	0,844
7	1,278	2,178	15,071	2,541	2,178	6,691	9,390	2,975	2,178	1,144	0,844	0,844
8	1,278	1,996	8,206	2,541	2,178	7,062	8,916	2,975	2,178	1,144	0,844	0,844
9	1,278	1,815	6,691	2,541	2,178	7,433	7,804	3,464	1,996	1,144	0,844	0,844
10	1,144	1,681	11,362	2,359	2,178	7,062	7,062	2,975	3,464	1,042	0,844	0,844
11	1,144	2,178	12,309	2,178	2,178	7,062	6,691	2,975	2,722	1,042	0,844	0,844
12	1,278	1,996	11,362	2,178	2,178	6,691	6,320	2,975	2,359	1,042	0,844	0,844
13	1,278	1,815	12,309	2,178	2,178	6,320	6,691	2,722	2,178	1,042	0,947	0,844
14	1,278	1,815	15,702	2,178	2,178	5,949	6,691	2,722	1,996	1,042	0,844	0,844
15	2,541	1,681	11,836	2,178	2,178	5,578	6,320	3,464	1,815	1,042	0,844	0,844
16	1,996	1,681	9,863	2,178	2,178	5,208	5,949	4,213	1,815	1,042	0,947	0,844
17	1,547	1,547	8,206	2,178	2,975	5,208	5,578	3,716	1,815	0,947	0,947	0,947
18	1,412	1,547	7,062	1,996	6,320	5,208	4,955	3,969	1,681	0,947	0,947	1,042
19	1,278	1,547	6,320	1,996	5,208	4,955	4,711	3,464	1,547	0,947	0,947	1,042
20	1,278	3,716	5,578	1,996	4,213	4,955	4,466	3,219	1,547	0,947	0,844	1,412
21	1,278	4,466	5,208	1,996	3,969	5,949	4,466	2,975	1,547	0,947	0,844	1,042
22	1,278	2,722	4,711	1,996	4,213	6,320	4,466	2,722	1,547	0,947	0,844	1,278
23	1,278	2,541	4,466	1,996	4,711	6,320	4,213	2,722	1,547	0,947	0,844	1,996
24	1,278	2,359	4,213	2,178	5,949	6,320	4,213	2,541	1,547	0,844	1,042	1,547
25	1,278	2,178	4,213	1,996	6,691	6,691	3,969	2,722	1,412	0,844	1,412	1,278
26	1,144	1,996	3,969	1,996	5,949	5,949	3,969	5,578	1,412	0,844	1,278	1,144
27	1,144	1,815	3,716	1,996	5,578	5,208	3,716	4,466	1,412	0,844	1,144	1,815
28	1,144	1,815	3,716	1,996	5,578	4,955	3,716	3,716	1,412	0,844	1,042	1,547
29	1,144	1,996	3,464	2,359	5,578	4,711	3,219	3,219	1,412	0,844	0,947	1,412
30	1,144	1,996	3,464	2,178	0,000	5,949	3,219	2,975	1,278	0,844	0,947	1,412
31	1,278	0,000	3,219	1,996	0,000	6,691	0,000	2,722	0,000	0,844	0,947	0,000
AVG. (m^3/s)	1,306	1,967	7,033	2,292	3,472	6,052	5,609	3,243	1,957	1,016	0,926	1,084

2009 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,144	1,412	1,681	1,547	13,177	17,438	11,757	8,995	6,320	2,541	1,547	1,547
2	1,144	1,412	1,547	1,547	8,995	13,887	13,177	8,443	5,949	2,359	1,412	1,547
3	1,144	1,278	1,547	1,681	6,880	11,757	15,307	7,890	5,578	2,359	1,412	1,547
4	1,144	1,278	1,412	1,681	5,476	10,021	21,304	8,443	5,578	2,541	1,412	1,547
5	1,144	1,144	1,412	1,681	4,750	10,494	18,148	53,497	5,578	4,213	1,412	1,547
6	1,144	1,278	1,412	1,996	4,024	11,047	17,438	49,078	5,208	3,716	1,412	1,547
7	1,144	1,278	1,278	3,716	3,748	14,597	33,929	40,083	4,955	3,219	1,681	1,547
8	1,042	1,278	1,278	3,969	3,472	18,148	31,956	36,296	4,955	3,716	1,412	1,547
9	1,042	1,278	1,547	3,464	3,472	19,726	23,671	27,616	4,711	2,975	1,547	1,681
10	1,042	1,278	1,547	2,975	6,360	17,438	21,304	22,409	4,711	2,722	1,412	1,681
11	1,042	1,278	1,412	2,722	6,360	15,307	18,937	19,489	4,466	2,541	1,412	1,681
12	1,042	1,278	1,278	2,541	5,476	14,597	17,438	16,964	4,466	2,359	1,412	1,681
13	0,947	1,412	1,278	2,359	5,113	14,597	15,307	15,071	4,466	2,359	1,412	1,815
14	0,947	1,412	1,278	2,178	4,750	13,887	14,597	13,808	4,711	2,722	1,412	2,178
15	1,547	1,412	1,278	2,178	7,401	11,047	18,937	13,335	4,711	2,541	1,412	1,681
16	1,996	1,278	1,278	2,359	13,887	9,468	18,148	12,861	4,213	2,541	1,412	1,681
17	1,547	1,278	1,278	2,722	11,757	7,890	16,017	12,309	4,213	2,359	1,412	1,547
18	1,412	1,278	1,278	3,219	10,021	7,401	13,887	11,836	3,716	2,359	1,547	1,547
19	1,412	1,412	1,278	2,975	8,443	6,880	12,467	11,836	3,464	2,359	1,815	1,547
20	1,278	1,412	1,278	2,722	8,995	6,360	11,757	11,836	3,464	2,178	1,815	1,547
21	1,278	1,412	1,144	2,541	9,468	5,839	11,757	11,836	3,464	2,178	1,815	1,547
22	1,278	1,412	1,412	2,541	7,890	5,839	11,757	11,362	3,464	1,996	1,815	1,681
23	1,278	1,815	1,996	2,722	7,401	7,401	12,467	11,362	3,219	1,815	1,815	1,547
24	1,278	2,975	3,464	2,722	10,494	10,494	11,757	11,362	3,219	1,681	1,681	1,547
25	1,144	5,208	2,975	2,975	13,177	8,443	10,494	9,863	2,975	1,681	1,681	1,547
26	1,144	3,219	2,359	5,578	18,148	8,443	10,494	7,804	2,722	1,681	1,681	1,547
27	1,278	2,541	2,178	8,206	31,956	16,728	8,995	7,433	2,722	1,681	1,681	1,547
28	1,412	2,178	1,996	6,320	23,671	19,726	8,443	7,062	2,722	1,547	1,681	1,412
29	1,412	1,996	1,996	7,433	0,000	16,017	7,890	6,691	2,722	1,547	1,681	1,412
30	1,412	1,815	1,815	9,863	0,000	13,887	8,443	6,320	2,541	1,547	1,547	1,412
31	1,412	0,000	1,681	13,808	0,000	12,467	0,000	6,320	0,000	1,547	1,547	0,000
AVG. (m^3/s)	1,246	1,698	1,632	3,708	9,456	12,170	15,599	16,113	4,173	2,373	1,559	1,594

2010 WATER YEAR

DAILY FLOWS OF EGLENCE WEIR (m^3/s)

DAYS	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE	JULY	AUG.	SEP.
1	1,412	2,541	2,359	8,522	7,401	17,367	14,597	10,889	3,969	2,675	2,012	1,523
2	1,412	4,955	2,178	8,206	7,401	16,017	13,177	10,336	3,969	2,675	2,012	1,523
3	1,412	5,578	2,359	8,522	25,249	16,017	11,757	9,784	3,969	2,454	1,846	1,689
4	1,412	5,949	2,541	8,206	22,093	13,887	11,047	9,784	3,969	2,454	1,846	1,689
5	1,412	53,497	2,541	7,804	18,148	12,467	9,468	9,311	3,685	2,233	2,012	1,523
6	1,412	12,861	2,722	7,062	15,307	11,047	8,995	9,311	3,685	2,233	1,846	1,523
7	1,412	8,206	2,722	5,578	13,177	10,494	9,468	8,758	3,969	2,233	1,846	2,233
8	1,412	6,691	2,722	5,578	11,757	11,047	8,443	7,930	4,537	2,233	1,846	2,233
9	1,547	5,208	2,541	5,208	11,757	12,467	7,401	8,285	4,253	2,233	1,846	1,846
10	1,547	4,711	2,541	5,208	10,494	14,597	6,360	7,890	4,253	2,233	1,846	1,846
11	1,412	4,213	2,722	4,955	10,021	13,887	5,839	7,535	5,287	2,012	1,846	1,689
12	1,412	4,466	41,977	4,711	9,468	13,887	91,528	7,535	4,253	2,012	1,846	1,689
13	1,412	8,522	35,428	8,522	8,995	15,307	41,819	7,157	3,969	2,012	1,689	1,689
14	1,412	7,804	23,119	8,522	8,995	13,887	33,455	7,157	3,685	2,012	1,689	1,846
15	1,547	6,691	15,071	15,702	10,021	11,047	26,433	6,786	3,685	2,012	1,689	1,689
16	1,547	5,949	11,836	18,227	10,494	10,494	22,488	6,786	3,401	3,969	1,689	1,689
17	1,412	5,208	33,692	16,964	11,757	8,443	20,120	6,786	3,117	3,685	1,689	1,689
18	1,412	4,711	23,119	15,071	12,467	7,401	18,779	6,786	3,117	3,117	1,689	1,689
19	1,412	4,213	18,227	24,618	13,177	6,360	17,438	6,415	2,896	3,117	1,689	1,689
20	1,412	3,716	14,439	42,924	12,467	5,839	16,806	6,415	2,896	2,675	1,689	1,689
21	1,412	3,464	12,309	45,764	13,177	5,476	20,909	6,036	3,117	2,454	1,523	1,689
22	1,412	3,219	13,335	29,352	12,467	5,476	19,410	6,036	2,896	2,454	1,523	1,689
23	1,412	2,975	11,362	59,020	10,494	5,476	16,096	5,665	3,685	2,454	1,523	1,523
24	1,412	2,722	10,889	37,874	8,995	5,839	14,755	5,665	4,253	2,454	1,523	1,523
25	1,412	2,722	10,415	26,038	8,995	5,839	14,124	5,287	3,117	2,233	1,523	1,523
26	1,412	2,541	9,863	18,937	10,494	5,113	13,414	4,908	3,117	2,233	1,523	1,523
27	1,815	2,541	10,415	15,307	11,047	5,113	12,940	4,908	2,896	2,233	1,523	1,523
28	1,996	2,359	10,415	12,467	17,438	5,476	12,388	4,537	2,896	2,233	1,523	1,523
29	1,815	2,359	10,415	10,494	0,000	26,038	11,914	4,537	2,896	2,233	1,523	1,523
30	1,815	2,359	10,415	8,995	0,000	23,671	11,362	4,253	2,675	2,012	1,523	1,689
31	2,178	0,000	8,916	7,890	0,000	16,728	0,000	4,253	0,000	2,012	1,523	0,000
AVG. (m^3/s)	1,512	6,432	11,729	16,201	12,277	11,361	18,091	7,023	3,604	2,428	1,707	1,680

APPENDIX B

CD CONTAINING CALCULATIONS FOR EGLENCE-1 HEPP