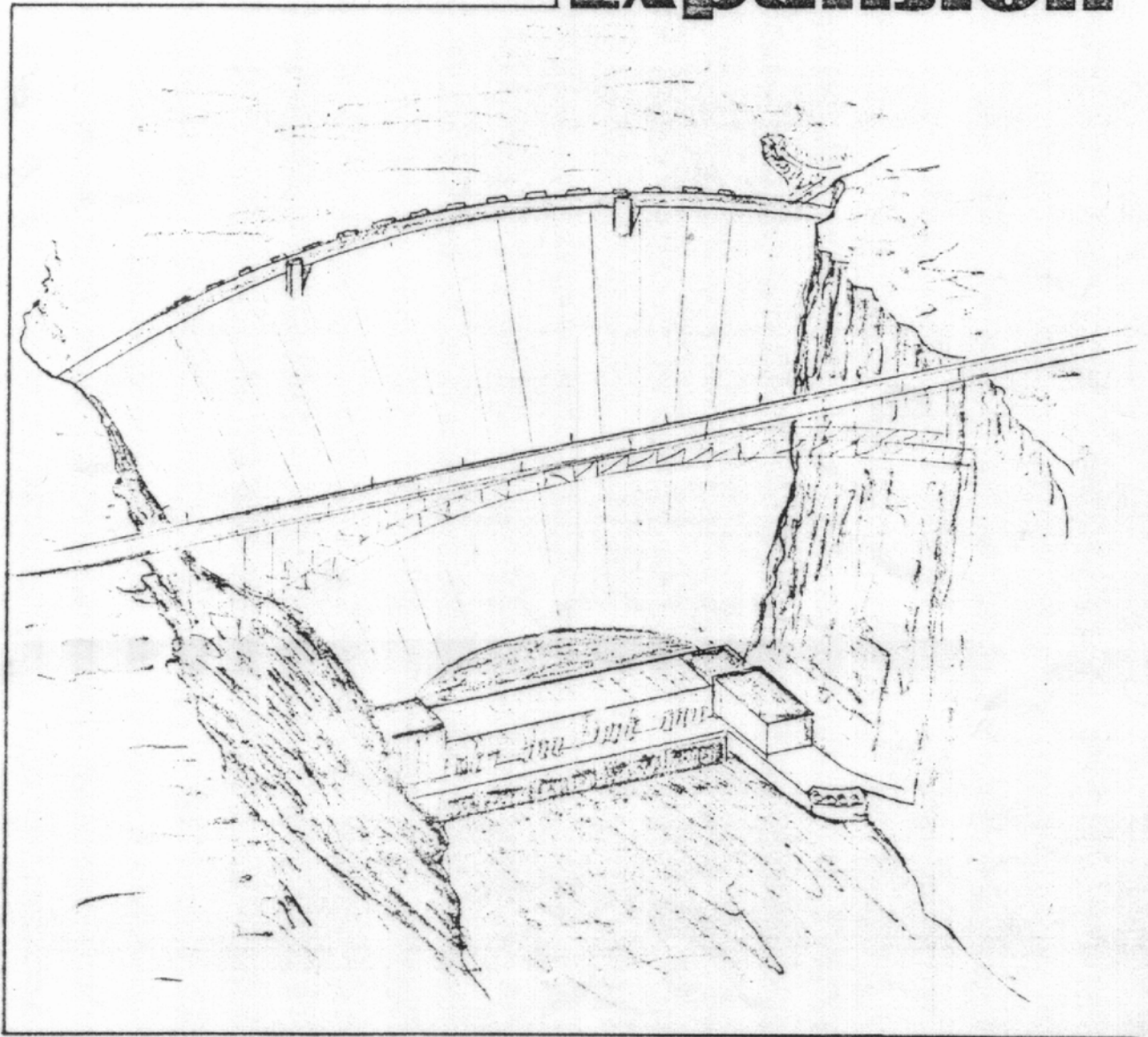


# GLEN CANYON DAM

## Power Plant

## Expansion



Public Meetings  
1979

# GLEN CANYON DAM POWER PLAN EXPANSION STUDY

## THE STUDY

The study to evaluate the economic and environmental impacts of expanding the power plant at Glen Canyon Dam is just beginning. The meeting tonight is being held to inform people that the Bureau of Reclamation is initiating the study and to listen to concerns people might have about the power plant expansion. Reclamation is interested in identifying the concerns of people so that data can be collected to address the concerns.

It is important that people express their ideas at the meeting tonight, but it must be realized that Reclamation is just beginning the study and will not be able to provide answers to specific questions.

## HISTORY OF STUDY

There is a rapidly increasing need for additional peaking power plants in the Colorado River Basin, (please refer to; "Peaking Power, What Is It?", in this brochure). Between 1975 and 1978 the U.S. Bureau of Reclamation conducted an extensive inventory of potential hydropower sites in the Colorado River Basin. Twenty-three alternative sites in the Upper Colorado River Basin were actively evaluated using a diverse set of criteria. As a result of the inventory, the "Peaking Power Status Report" was prepared in 1978. The expansion of the Glen Canyon Power Plant was recommended for further study in the report. Congressional authorization was granted in 1978 to conduct

an investigation which will result in a Feasibility Report and Environmental Impact Statement in 1981.

#### PROJECT PLAN

The plan is to expand the present power plant by utilizing the four pipes located on the river's south side immediately below the dam and now serving as the outlet works. These outlet works were installed to allow for controlled releases from the reservoir. Generators could be retrofitted to the outlet pipes to produce additional power. At this time it appears most feasible to add about 250,000 kW of electrical capacity; the existing power plant has a capacity of about 1,000,000 kW. The 250,000 kW expansion is the absolute maximum and may have to be reduced if further information indicates 250,000 kW is too large due to economic or environmental constraints.

Along with the increase in peaking power will be an increase in the flow of the Colorado River below the dam. As alluded to in our illustrations of river cross-sections, this incremental rise will be from the present maximum level of 33,000 cfs to an estimated 40,000 cfs or by 18.5%.

#### POTENTIAL IMPACTS

At the present time the Bureau of Reclamation is unable to quantify the potential impacts of the power plant expansion. Data will be collected and evaluated during the next 12 to 18 months so that impacts can be specifically addressed in the Environmental Impact Statement. It is important that all of the potential impacts are

identified at this stage of the study so that the appropriate data can be collected. Preliminary studies have revealed that the following areas may be impacted, these are: sport fishing above Lee's Ferry, endangered species, river rafting above and below Lee's Ferry, erosion of beaches, effect on vegetation on beaches, and effect on camping beaches below Lee's Ferry. If it is felt that there are other potential impacts not mentioned here, please express them at the meeting or write them down and send in the attached envelope.

#### PARTICIPATION IN STUDY

Anyone who is interested in participating in the study is welcome and encouraged to do so. There are three levels of participation available to people corresponding to each person's interest in the study and the time they have available to donate to the study. There will be a public group which will be for people or organizations who want to be informed about what is going on with the study and who occasionally will have comments to contribute. The technical teams are for people who have a specialized interest and who want to get more deeply involved in the study. The Planning Team is for representatives of the technical teams to meet and coordinate activities of the technical teams. The attached illustration will help to show the relationship between the teams. The following description of each team goes into more detail.

#### Planning Team

The level of participation here will require the most effort. Membership will be restricted to technical team representatives.

Frequent meetings will be held, with the time and expense to be borne by the individual. It is anticipated that this team will coordinate all the information arising from the technical teams and oversee the content of the feasibility study and the Environmental Impact Statement.

#### Technical Teams

Participation at the technical team level will be open to all interested organizations and individuals. Meetings will be held less frequently than the Planning Team with team leaders serving as the primary information sources for individual members. Each technical team will be responsible for selecting a leader and representation to the Planning Team. The areas for which these technical teams will be formed follow. If other technical teams are needed they will be formed later.

#### Biological Technical Team

This group will address itself to the biological impacts created by the increased water flow, including; endangered species (such as the humpback chub), sport fishing, and the impacts upon vegetation along the river banks. This group will be invaluable in the formulation of the Environmental Impact Statement.

#### Recreation Technical Team

Of major concern here will be the impacts upon river rafting and possible erosion of camping beaches through the Grand Canyon.

#### Power Technical Team

The power team will analyze power needs, load centers, transmission system capability, and other power related issues.

### Social Technical Team

This team will investigate the effects of the Glen Canyon expansion upon social, economic and cultural conditions. Representation would probably come primarily from the Page community including, city and county authorities, social-welfare groups and concerned citizens.

### Public Group

This group will have the most open participation and meet less frequently than at the other two levels. Membership on the planning and technical teams will entitle one to be a member of this body as well. Communication will be coordinated by the Bureau of Reclamation through periodic newsletters and solicited comments from people on items in the newsletters. Rather than an indepth study of specific data, the public group will review the major findings of the planning and technical teams. Having the widest participation, it is envisioned that this group will interact closely with the local community and encourage other concerned citizens to become similarly involved.

### WHO TO CONTACT

The Durango Projects Office of the Bureau of Reclamation is responsible for conducting the studies and writing the Environmental Impact Statement. Steven Harris is responsible for overall management of the study; he is the person to contact on most items. The address of the Durango Office is:

U.S. Bureau of Reclamation  
P. O. Box 640  
Durango, Colorado 81301  
(303) 247-0247

Feel free to write or call collect if you have any comments or questions concerning the Glen Canyon Power Plant Expansion Study.

# PUBLIC INVOLVEMENT WITH GLEN CANYON DAM POWER PLANT EXPANSION

## INVOLVEMENT LEVELS

### PLANNING TEAM

Participation restricted to  
Technical Team Representatives.

Frequent meetings, provide own  
travel & time.

### TECHNICAL TEAMS

Participation open.

Biology  
Recreation  
Power  
Social

Infrequent meetings, provide own  
travel & time.

### PUBLIC GROUP

Participation open.

We will come to you.



# ELECTRICAL GENERATION AND DEMAND TYPICAL WEEKLY LOAD PATTERN

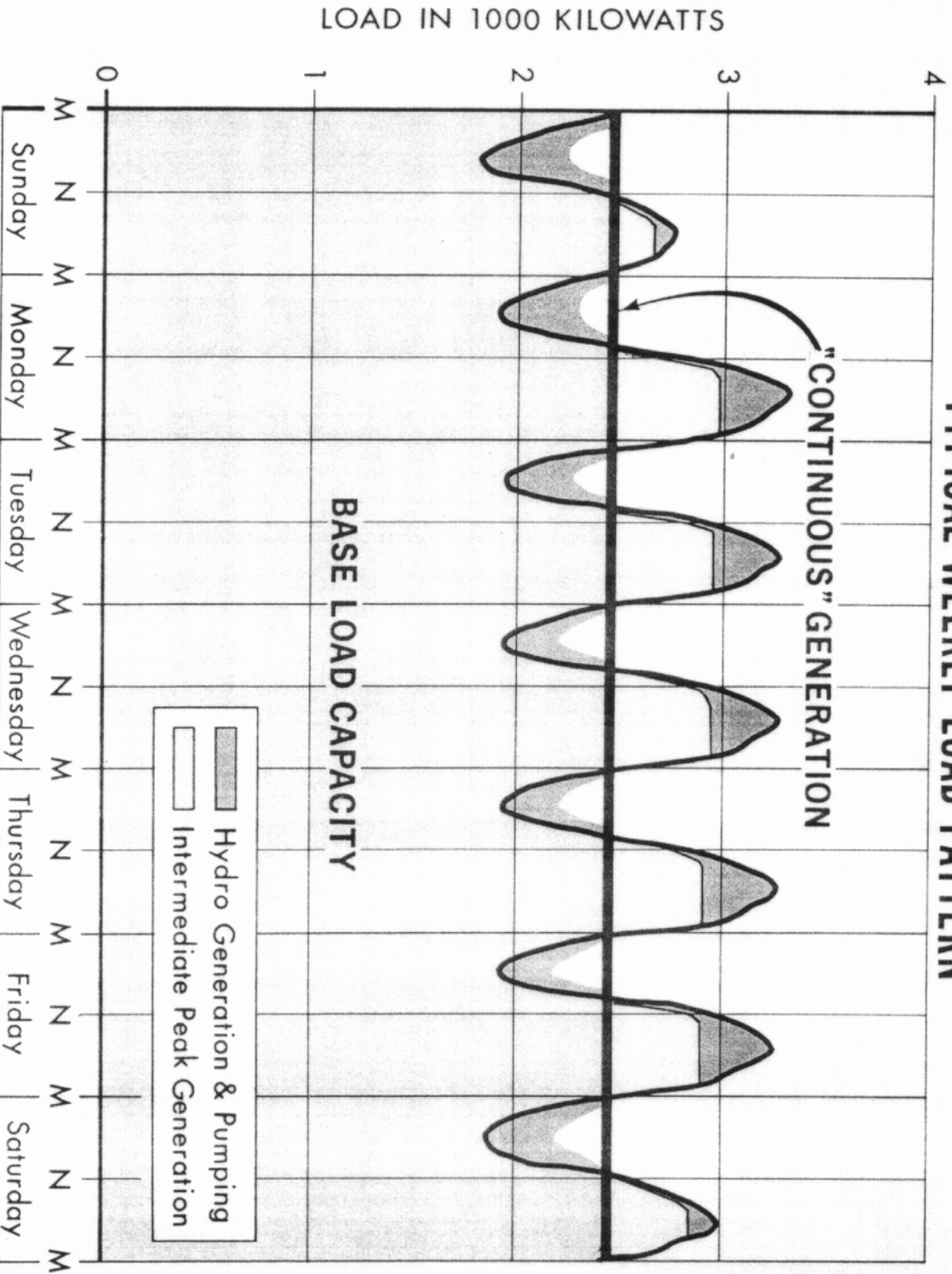


FIGURE 3



# Glen Canyon Peaking Power Study



As a result of the Peaking Power Status Report undertaken by the U.S. Bureau of Reclamation (February 1979), Congressional Authorization was granted to further examine the feasibility of installing additional turbines on the outlet works of Glen Canyon Dam. The findings of this study will result in the publication of a Feasibility Report and an Environmental Impact Statement.

You, as well as other members of the general public, who possess an interest in the events surrounding the use of the Colorado River, are invited to attend one of a series of meetings to initiate a Public Involvement Program. These meetings will be held in late July at Page, Flagstaff, Phoenix and Salt Lake City (please see the reverse side for specific dates, times and venues).

The format to be used in these initial meetings will include a presentation by the Bureau of Reclamation followed by an open discussion in pertinent topical areas. If you are unable to attend these initial meetings but wish to participate in the investigations of the proposed increase of hydro-electric capacity at Glen Canyon Dam, please contact Steve Harris at:

Bureau of Reclamation  
P.O. Box 640  
Durango, Colorado 81301  
(303) 247-0247

Additionally, if you know of any other parties that may share an interest in these studies but have not received this notice, please invite them to attend these meetings or contact us so they can be added to our mailing list.

Page, Arizona	July 24	7:30 p.m.	Glen Canyon Dam Visitors' Center
Flagstaff, Arizona	July 25	7:30 p.m.	Seminar Hall H.S. Colton Research Center Museum of Northern Arizona
Phoenix, Arizona	July 26	7:30 p.m.	Maricopa County Supervisors' Auditorium 205 W. Jefferson
Salt Lake City, Utah	July 31	7:30 p.m.	Ramada Inn 10th South and Main Street

# GLEN CANYON DAM

# Power Plant EXPANSION STUDY

Water & Power Resources Service

Newsletter Number 1  
September 1979

Durango Projects Office  
P.O. Box 640  
Durango, Colorado 81301

## Introduction

The name of the Bureau of Reclamation has been changed to the Water and Power Resources Service (Water and Power). The name change will in no way affect the Glen Canyon Dam Power Plant Expansion Study.

The purpose of the study is to determine the economic, environmental, and engineering feasibility of expanding the Glen Canyon Dam Power Plant. Water and Power is requesting assistance from all of you to help evaluate the feasibility of the expansion. You have an opportunity to contribute by 1) responding to items you read in this newsletter, 2) coming to public meetings, 3) participating on a technical team, 4) contacting this office whenever you have comments, and 5) returning the enclosed response form. You will periodically be kept up-to-date on activities through meetings and newsletters. The final decisions will be written in an environmental statement and an economic and engineering feasibility report. A recommendation to the U.S. Congress will accompany the reports and will state whether or not the power plant expansion should be constructed.

The following items in this newsletter summarize activities of the study.

### Planning Team

This team is responsible for review and recommendations from an interdisciplinary view. The members of each of the technical teams are on the planning team, which held a meeting on November 3, 1979 in Phoenix. Areas potentially impacted by the project are the trout fishery downstream of Lee's Ferry, the fishery between Glen Canyon Dam and Lake Mead, endangered fish species, rafting, beach erosion, vegetation and wildlife on beaches, construction impacts, and recreation access near Page. The team felt that alternative sizes for the power plant expansion should be considered initially; then, if a size can be selected, compare the impacts of that size to alternative peaking power hydro sites and alternative peaking power technologies.

### Biology Technical Team

This team is responsible for reviewing and making recommendations concerning potential biological impacts. Two meetings were held, on August 23 and August 30, 1979, in Flagstaff. The cross section locations between the dam and Lee's Ferry for fishery evaluation were selected. The team felt impacts downstream of Lee's Ferry were as important as those upstream of Lee's Ferry. The team leader is Frank Baucom.

### Power Technical Team

This team is responsible for review and recommendations concerning power issues. At a meeting held on September 20, 1979, in Page, the team decided that most issues concerning power were common to all peaking power studies being conducted in the Upper Colorado Region. Water and Power should gather information on power issues, such as marketing, transmission, financing, and alternatives. The team leader is John Sullivan.

#### Social Technical Team

This team is responsible for review and recommendations concerning social impacts. A meeting was held on September 4, 1979, in Page. The major items discussed were: employment and income effects on Page, the number and length of employment of construction workers, and the impact on schools. The Co-team leaders are Steve Gunn and Art Grosch.

#### Recreation Technical Team

This team is responsible for review and recommendations concerning potential impacts on existing recreation uses. A meeting was held on October 4, 1979, in Page. Unfortunately, there were not enough people to conduct a business meeting. Slides of the Colorado River through the Grand Canyon were presented. The team leader is Marvin Jensen.

#### Coming Attractions

Currently, information is being collected so that a size for the power plant expansion (from no expansion to 250 MW) can be selected. River data collection is scheduled in the next nine months, followed by an evaluation period, then a decision on the size. Future newsletters, sent to about 250 people, will cover the data collection activities. No meetings for any of the teams are currently scheduled.

Please call 303-247-0247, collect, or write to Steven Harris in the Durango Projects Office if you have any comments on the study.

# GLEN CANYON DAM

Water & Power Resources Service

# Power Plant EXPANSION STUDY

Newsletter Number 2  
February 1980

Durango Projects Office  
P.O. Box 640  
Durango, Colorado 81301  
303-247-0247

## Introduction

This newsletter describes an important data collection program just completed by Water and Power that will assist in addressing potential impacts of expanding the power plant. Also included in this newsletter is a summary of the responses to the questions asked in newsletter number 1.

## Data Collection

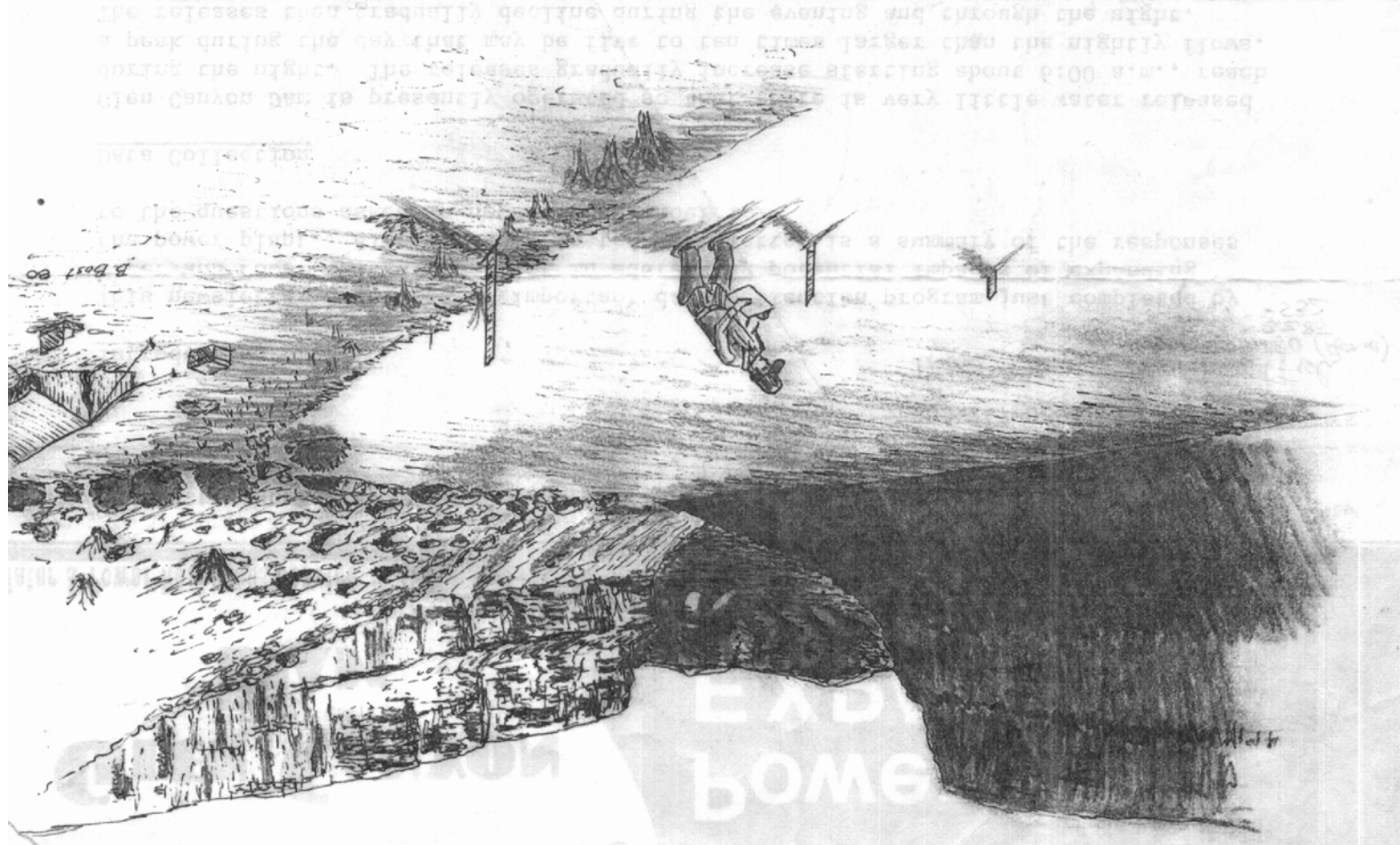
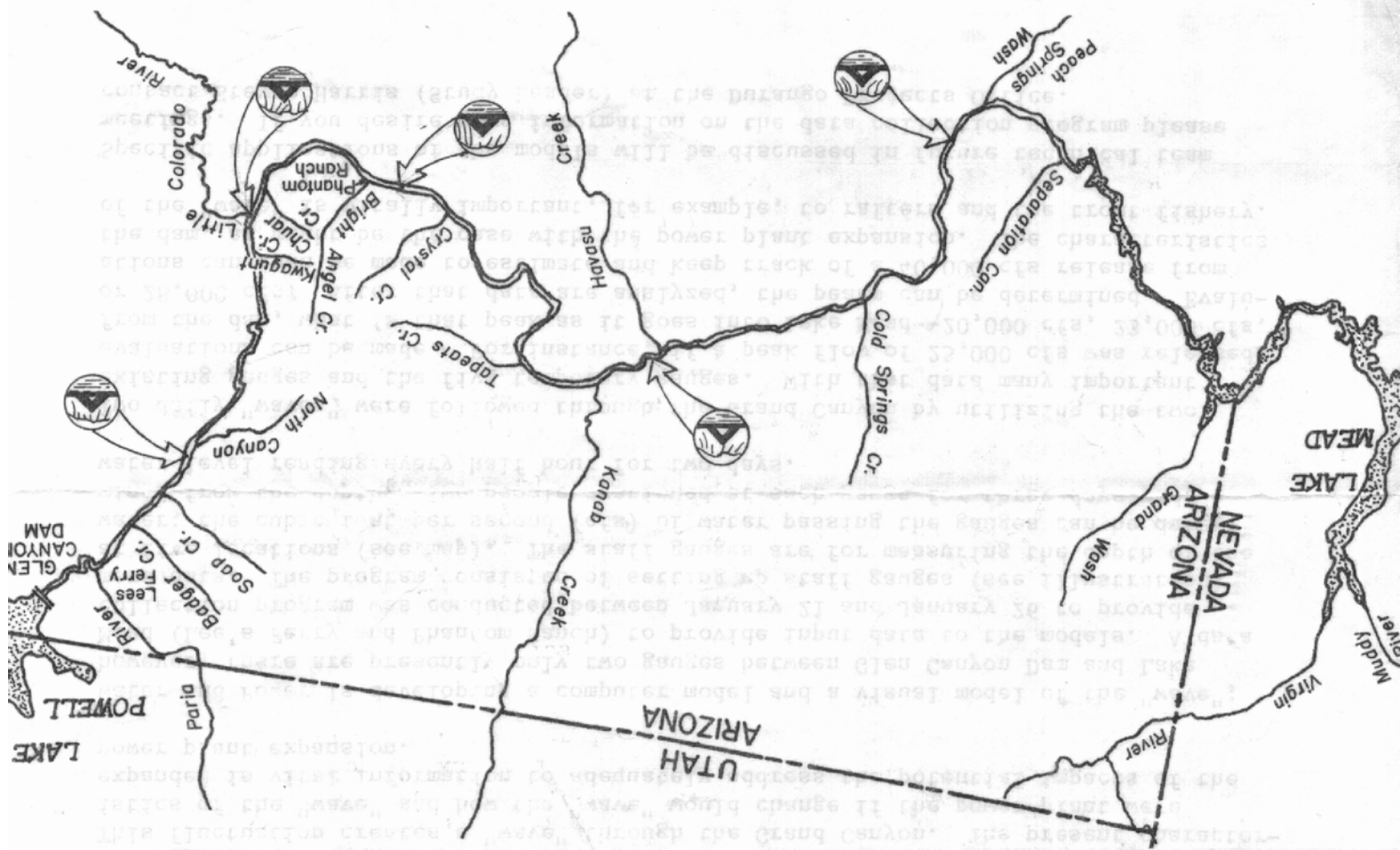
Glen Canyon Dam is presently operated so that there is very little water released during the night. The releases gradually increase starting about 6:00 a.m., reach a peak during the day that may be five to ten times larger than the nightly flows. The releases then gradually decline during the evening and through the night. This fluctuation creates a "wave" through the Grand Canyon. The present characteristics of the "wave" and how the "wave" would change if the power plant were expanded is vital information to adequately address the potential impacts of the power plant expansion.

Water and Power is developing a computer model and a visual model of the "wave"; however, there are presently only two gauges between Glen Canyon Dam and Lake Mead (Lee's Ferry and Phantom Ranch) to provide input data to the models. A data collection program was conducted between January 21 and January 26 to provide more data. The program consisted of setting up staff gauges (see illustration) at five locations (see map). The staff gauges are for measuring the depth of the water; the cubic feet per second (cfs) of water passing the gauges can be determined from the depth. Two people stationed at each gauge for three days made a water level reading every half hour for two days.

Two daily "waves" were followed through the Grand Canyon by utilizing the two existing gauges and the five temporary gauges. With that data many important evaluations can be made. For instance, if a peak flow of 25,000 cfs was released from the dam, what is that peak as it goes into Lake Mead--20,000 cfs, 23,000 cfs, or 28,000 cfs? After that data are analyzed, the peaks can be determined. Evaluations can then be made to estimate and keep track of a 40,000 cfs release from the dam, as might be the case with the power plant expansion. The characteristics of the "wave" is vitally important, for example, to rafters and the trout fishery.

Specific applications of the models will be discussed in future technical team meetings. If you desire more information on the data collection program please contact Steven Harris (Study Leader) at the Durango Projects Office.

Dave Bauhoff - Game & Fish  
525-1380 (Home)  
779-2285  
774-8532



# GLEN CANYON DAM

Water & Power Resources Service

# Power Plant EXPANSION STUDY

Newsletter Number 3  
April 1980

Durango Projects Office  
P.O. Box 640  
Durango, Colorado 81301  
303-247-0247

## Introduction

We hope that this, the third newsletter on activities surrounding the Glen Canyon Dam Power Plant Expansion Study, will help to keep you informed. If you have any suggestions or comments concerning the content of the newsletter or for improving the newsletter, please contact Steven Harris in the Durango office. For instance, after one person saw Newsletter Number 2 he recommended a computer model to help analyze the "wave" through the Grand Canyon.

A major data collection program that will help evaluate the impact on camping beaches was completed in March and is described below. Also discussed is the schedule for the first major decision on the study and a potential alternative to the power plant expansion.

## Data Collection

In March, the National Park Service river unit took a group of people from Water and Power through the Grand Canyon, from Lee's Ferry to Diamond Creek. The group included engineers, hydrologists, a sediment expert, surveyors, a technical writer, and a botanist. The purpose of the trip was to acquaint Water and Power people with the Grand Canyon and to make topographic maps of four camping beaches (please refer to the map included in Newsletter Number 2).

The Park Service crew showed Water and Power some of the beaches that are eroding; they explained the problems in finding camping beaches in some stretches of the Canyon and the importance of not losing the existing beaches. The Water and Power group got a much better feeling for problems in the Grand Canyon because of this trip.

The data collected on the raft trip will add to the existing information on the "wave" through the Canyon summarized in Newsletter Number 2. The "wave" is formed from the fluctuating releases out of Glen Canyon Dam. On the raft trip, four beaches upstream of rapids were surveyed so that a topographic map of each beach from canyon wall to wall, including the river channel, could be made. The survey extended upstream from the rapid, 1/4 to 3/4 miles, depending on the beach. The beaches were Twenty Mile, Granite Falls, Last Chance, and Trail Canyon. A depth recorder was taken on the trip to measure water depths in the river channel.

# Power Plant EXPANSION STUDY

GLENN CANYON  
DAM

1978 POWER RESOURCES DIVISION

A numerical model of each beach will be made that can be used to predict the change in water surface elevation at each beach if releases from the dam were increased. The water surface elevation can, it is hoped, help to estimate changes in beach erosion; from that, the impact on vegetation and the impact on wildlife can be estimated. Presently the topographic data is being correlated and will be analyzed in the next few months. The Biology and Recreation technical teams will meet to discuss the evaluation of the data this summer.

## Decision

The first major decision will occur very early in 1981 and will be to determine the recommended size of the power plant expansion. A figure of 250 Megawatts has been discussed; however, that size could be reduced when the economic, environmental, and engineering studies are completed. A decision not to expand the power plant is also a possibility.

Evaluations of possible impacts will be made by Water and Power, the technical teams (Power, Biology, Recreation, Social), and the Planning Team before deciding on a size. Anyone not on a technical team will also get a chance to comment through this newsletter and a public meeting before the decision is made.

## Alternative

During the course of the study, alternatives to expanding the power plant will be considered. One of the potential alternatives is conservation. The purpose of this description is to explain how energy conservation could reduce the need for peaking power and, in turn, peaking power projects.

Peaking power projects provide power during high power demand periods, which are on weekdays between about 6:00 a.m. and 11:00 a.m., then again from 3:00 p.m. to 8:00 p.m. The afternoon demand is higher than the morning demand. Peaking power demands could be lessened if industry and individuals would reduce their electrical usage during those times.

One way to reduce peaking power demands is for each individual to become conscious of their electrical usage patterns, then try to curtail usage or shift electrical consumption to noncritical times. A few electrical utilities have begun charging more for power used during critical times which provides an incentive to shift or curtail electrical usage.



# GLEN CANYON DAM

Water & Power Resources Service

# Power Plant EXPANSION STUDY

Newsletter Number 4  
September 1980

Durango Projects Office  
P.O. Box 640  
Durango, Colorado 81301  
(303) 247-0247

## Introduction

This newsletter, the fourth on the Glen Canyon Dam Power Plant Expansion, will explain the decision needed early in 1981 on what size to recommend for the power plant expansion or not having a project and the start of an editorial page for the newsletter. Also covered will be a data collection program for evaluating the fishery between the dam and Lee's Ferry.

## Decision

As stated in Newsletter Number 3, the first major decision for the study will occur early in 1981 and will involve selection of a size; either 125 megawatts, 250 megawatts, or deciding that the project should not be built and the study should be discontinued.

Water and Power will prepare brief descriptions of the impacts and economic feasibility of a 125-megawatt and a 250-megawatt power plant expansion. A description of the alternative of not having a project will also be described for comparison with the two alternative expansion sizes. These descriptions will be given to the teams for review, discussion, and suggestions; and public meetings will be held to discuss the sizes or not having a project.

## Editorial Page

In order to further promote discussion on the project, an editorial page will be added to future newsletters. The procedure will be that if people would like to make a statement on the project they are encouraged to send a letter with their ideas to this office with their name and address. We will print the letters in the following newsletter. We may have to edit some letters for length. We hope that the newsletter editorial page will provide another forum for discussion of issues on this important study.

# Power Plant EXPANSION

## Fishery

Early in the planning stages of developing environmental studies below Glen Canyon Dam, the "Lee's Ferry Fishery" was singled out as a resource that warranted special attention.

The biological subteam recommended that the Fish and Wildlife Service's Instream Flow Methodology be applied to this 15-mile section of the Colorado River. This methodology can predict available fish habitat at varying flow increments (i.e., 5,000 cfs., 15,000 cfs., 40,000 cfs., etc.). Specifically, the amount of usable fish habitat can be expressed as a function of velocity, depth, and substrate (composition of streambed).

Eleven cross-sections were selected in a study reach located approximately 5 miles below Glen Canyon Dam. Each cross-section was selected to predict specific habitat types. At three different flows, each one of the cross-sections was surveyed for overall depth, water velocity, and bottom substrate. Since we are predicting fish habitat over a wide spectrum of available flow (1,000 to 40,000 cfs.), we correspondingly selected representative flows for our study. Recently, the last set of measurements was taken at a flow of approximately 26,000 cfs. The other two measurements were taken earlier this year at 2,000 and 16,000 cfs.

Although existing fish habitat data are available for velocities, depths, and substrate, we are supplementing these data with our own study designed to develop fish preferences for this specific habitat area. Through the use of divers and surface observation, we will be able to predict the probability of finding a specific fish species at a given combination of these hydraulic criteria.

We anticipate that this study will be completed by early 1981. At that time, possible impacts to this important fishery resource could be quantified and used in selecting a size.

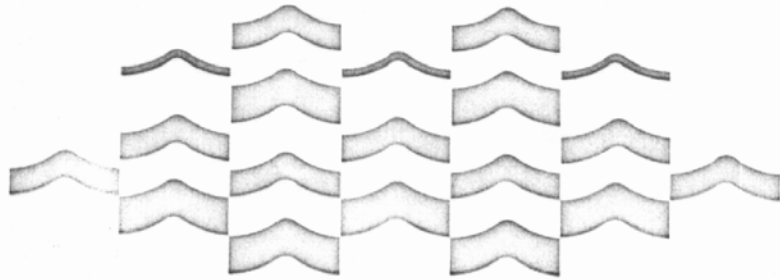
## Editorial Page

In order to further promote discussion on the project, an editorial page will be included in the newsletter. We encourage you to send a letter with their name and address. We will print the letters in the following newsletter. We may have to edit some letters for length. We hope that the newsletter editorial page will provide another forum for discussion of this important study.

## News Release

Upper Colorado Region

Salt Lake City, Utah  
Loveless (801) 524-5403  
For Release February 17, 1981



### Social Impacts Meeting on Powerplant Expansion

A meeting of the Social Subteam of the Glen Canyon Dam Power Peaking Capacity Investigation will be held at the Page City Hall Council Chambers at 7:30 p.m. on Monday, February 23, 1981, Upper Colorado Regional Director Bill Plummer, of the Water and Power Resources Service announced today.

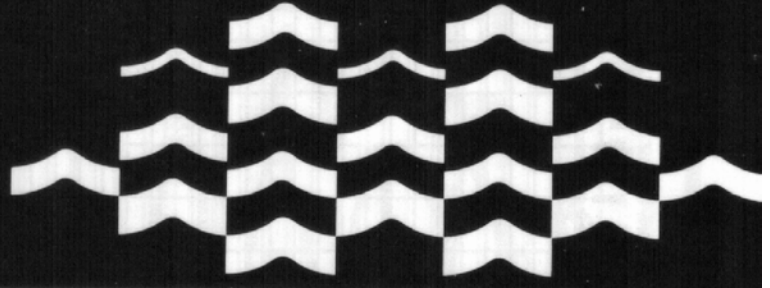
A major topic at the meeting will be the impact on the Page community of constructing additional power generation units at Glen Canyon Dam.

"Up to 250 megawatts of additional power capacity could be developed with construction expenditures of \$150 million," Plummer said. "The population increase could reach 1,800 during the peak year of construction, or 40 percent of the current population of Page. If less than 250 megawatts of generating capacity were added, the costs and impacts would be proportionately less. However, at any level of development, impacts on the Page community could be significant."

All interested people are invited and encouraged to attend the meeting. Further information can be obtained by contacting the Water and Power Resources Service office in Durango, Colo., at (303) 247-0247.

# # #

# Public Involvement Newsletter



Newsletter Number 5  
Expansion Study  
May 1981

Glen Canyon Dam Power Plant

Since the last newsletter much has happened to the Glen Canyon Peaking Power Study. More data has been collected for the fish habitat study between Lee's Ferry and Glen Canyon Dam. The data is being reviewed by fish biologists at this time. The subteams have looked at preliminary release patterns showing future operations of the dam both with and without the additional turbines. Hydrographs showing downstream flow patterns at various locations in the Grand Canyon are inside this newsletter. A new team leader, John Davison, from Water and Power Resources Service's Durango Projects Office has been designated.

Future newsletters, as the study advances through the feasibility planning stage, will report on other studies and announce meetings and upcoming public involvement activities.

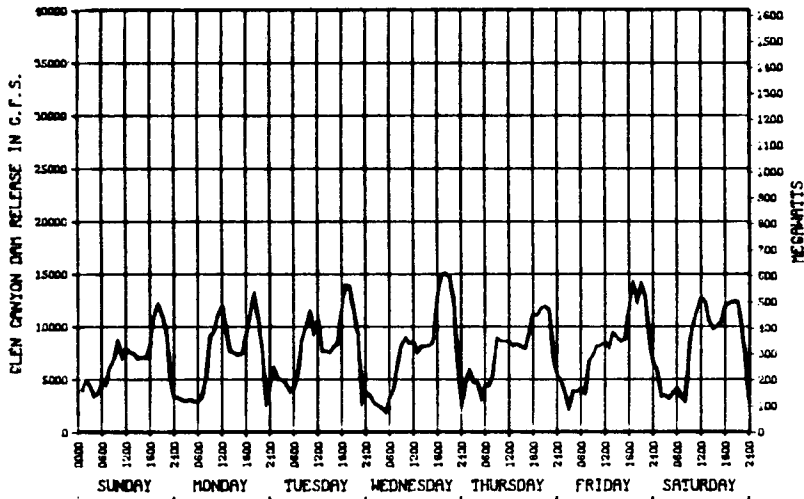
## STATUS OF THE STUDY

We are nearing the point where we need to begin detailed engineering studies on an additional power unit at the dam if we are to meet the deadlines for completing the feasibility report and the environmental impact statement. We must select one of the two possible sizes, 125 or 250 megawatts, for a feasibility engineering study (detailed study will also enable us to more accurately predict impacts), or decide at this point that no additional unit is feasible and conclude the investigation. The size selection is not a plan selection. The selected size would represent one peaking power alternative that would be compared in the feasibility report to other alternatives, both structural and nonstructural, including other potential hydropeaking sites, other peaking power technologies and conservation. Below is an updated schedule of future events.

## CURRENT SCHEDULE

Planning team meeting.....	mid-June 81
Public meetings on size selection.....	July 81
Size selection.....	Sept 81
Feasibility Analysis and Report Preparation.....	Sept 81-Aug 82
Environmental Impact Statement preparation.....	Sept 81- Aug 82
Last date for public input prior to draft reports.....	July 82
Regional Director's Proposed Report (Draft Feasibility Report).....	Jan 83
Regional Director's Feasibility Report (Final Feasibility Report).....	July 83
Draft Environmental Impact Statement (followed by comment period).....	Aug 83
Final Environmental Impact Statement.....	April 84

**TYPICAL GLEN CANYON RELEASE**  
 SPRING SEASON AT HIGH RESERVOIR ELEVATIONS\*



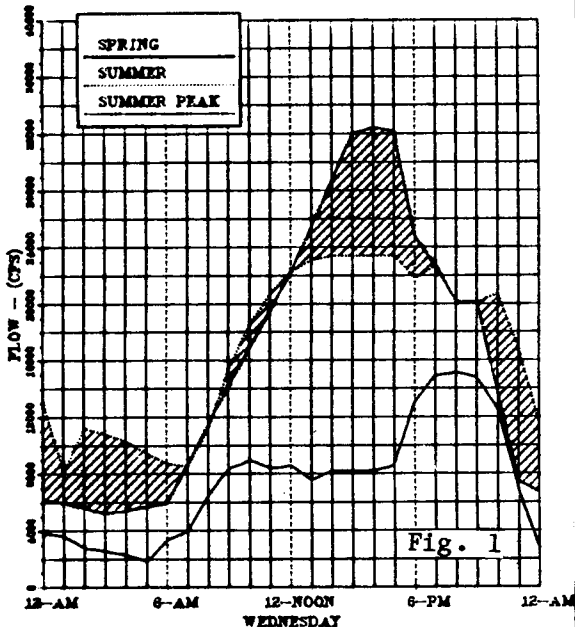
Spring releases would be very similar to historic releases since reduced power demands are met by cheaper base load operations. This is a typical release during the "rafter's spring," the period from about Easter to mid-June. This historic pattern is taken from records at the dam. The predicted pattern is the same and would have occurred during this week if the peaking power units had been in place.

**PRELIMINARY RELEASE PATTERN AND FLOW PATTERNS AT VARIOUS LOCATIONS**

\* WHY ARE HIGH RESERVOIR ELEVATIONS REPRESENTED? Lake Powell filled for the first time. There is a 50 percent probability that this elevation will be maintained for the next 60 years. With a power plant with releases less than 40,000 c.f.s. a reservoir will be generated and made available.

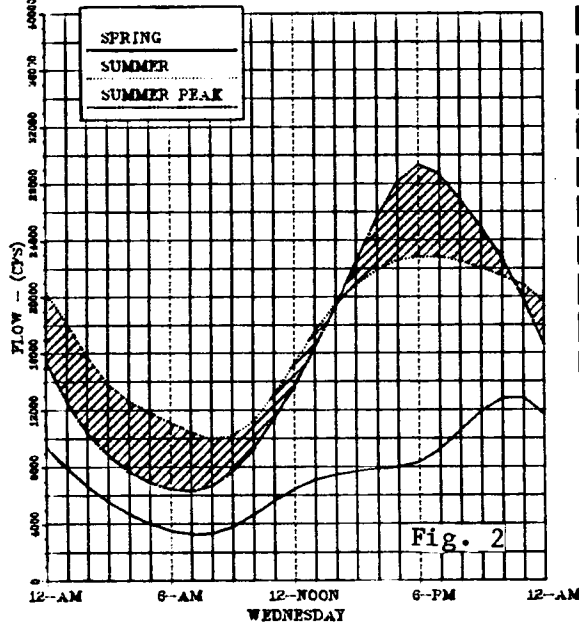
THE FIVE GRAPHS RUNNING ACROSS THE COLORADO RIVER at the Canyon Dam and the flow patterns at various locations with the proposed expansion, on a Wednesday with the proposed expansion, on a Wednesday. The same 24-hour period is represented. The sharp peaks and troughs of the release pattern are smoothed out. The water flows down the river. Low flows are maintained at a slightly higher velocity. Beyond Phoenix, the flow pattern (maximum and minimum flows and the timing of the peaks and troughs) is established. These phenomena are similar to river runners. With powerplant expansion, the peaks and troughs a little lower, as seen on the following graphs.

**COLORADO RIVER**  
 FOR 4/15/81 AND 8/8/78  
 GLEN CANYON DAM RELEASES



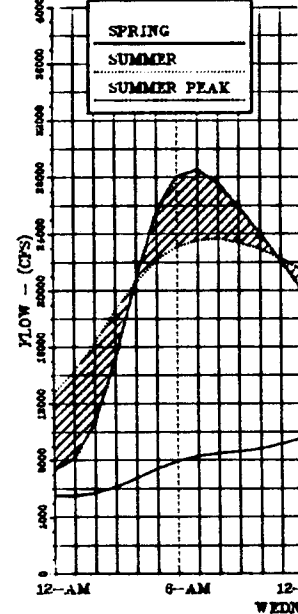
This hydrograph shows 3 release patterns from Glen Canyon Dam. Two are historical patterns (Spring and Summer) and the remaining one (Summer Peak) shows what future releases may look like for a typical Wednesday in the summer with an additional 250 megawatt generating capacity.

**COLORADO RIVER**  
 LEE'S FERRY LOCATED 15 MILES BELOW GLEN CANYON DAM  
 APPROXIMATE FLOW TIME FROM GLEN CANYON DAM = 2 HOURS



The diminished peak reaches Lee's Ferry on the same day. The jagged appearance of the first hydrograph has smoothed considerably.

**COLORADO RIVER**  
 HANCE RAPID LOCATED 100 MILES BELOW GLEN CANYON DAM  
 APPROXIMATE FLOW TIME FROM GLEN CANYON DAM = 10 HOURS

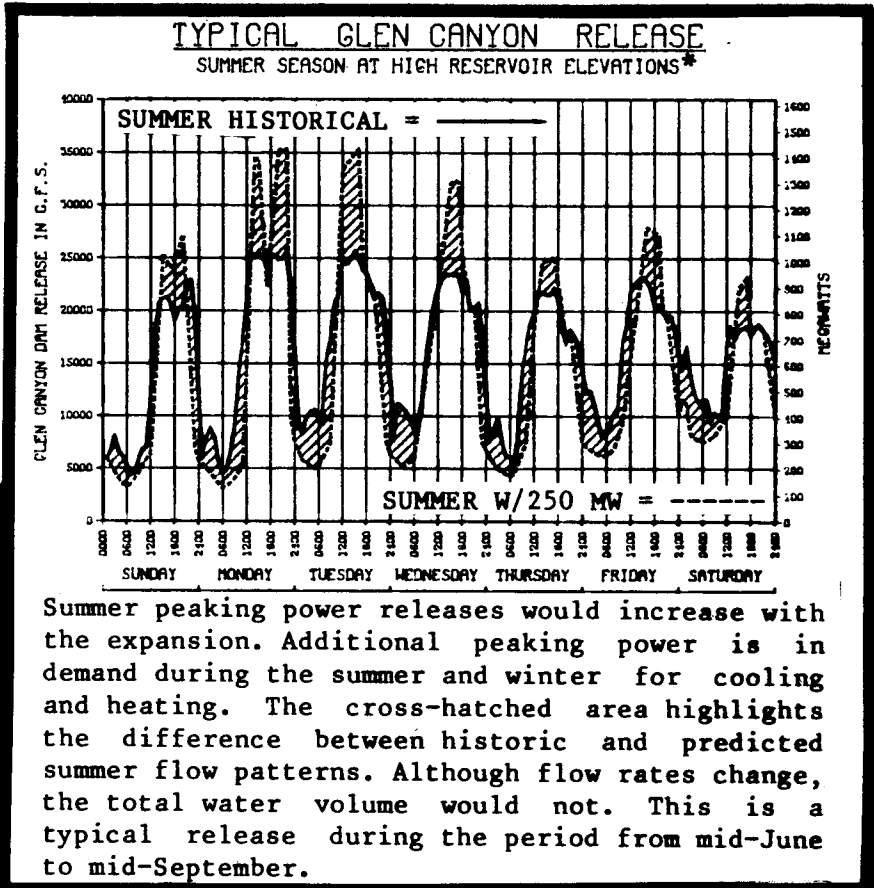


The peak here is significantly lower than at Lee's Ferry. The peak has dropped to approximately 25,000 C.F.S.

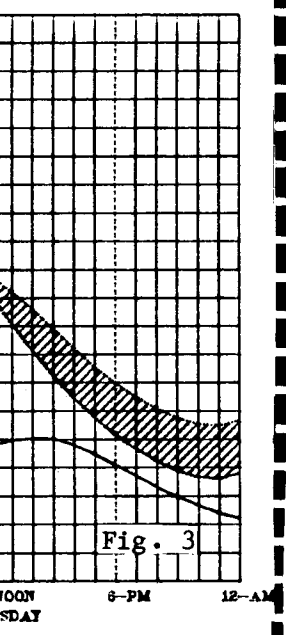
# RELEASES FROM GLEN CANYON DAM AT VARIOUS LOCATIONS DOWNSTREAM

PRESENTED ON THE HYDROGRAPHS?  
 In its 17-year history in June of 1980, the reservoir will remain at a high full reservoir, we can produce maximum releases. Hydrographs of conditions with a low available to the public.

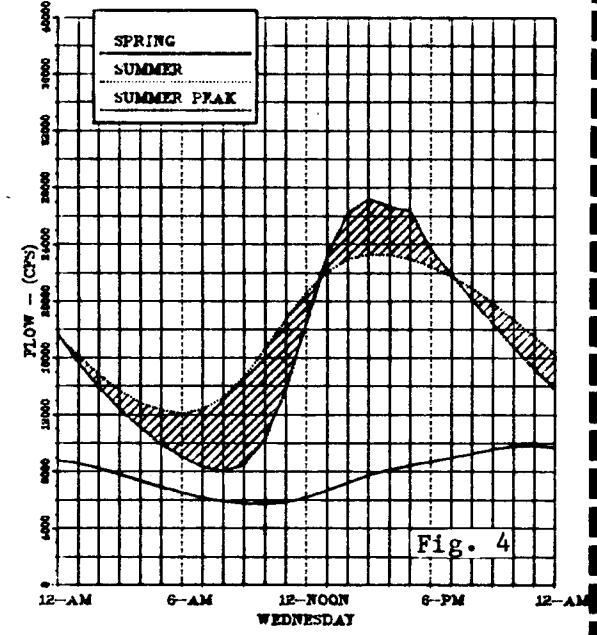
page show the bottom of release at Glen Canyon four points downstream, both historic and predicted for Wednesday during typical spring and summer releases presented by each graph. Releases from the dam are dampened as the distance from the dam are increased by later flows moving at various points. At Grand Canyon National Park, the general flow pattern is similar to the dam. The distance between consecutive peaks and troughs are common knowledge to experienced hydrographers. In the summer, peaks are generally somewhat higher than the winter hydrographs.



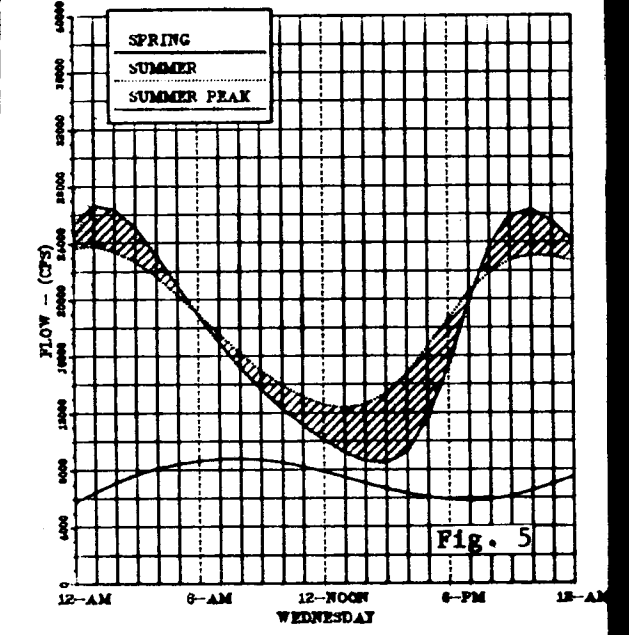
**COLORADO RIVER**  
 7 MILES BELOW LEE'S FERRY  
 GLEN CANYON DAM - 14-19 HOUR



**COLORADO RIVER**  
 BEDROCK RAPID LOCATED 130 MILES BELOW LEE'S FERRY  
 APPROXIMATE FLOW TIME FROM GLEN CANYON DAM - 23-29 HOUR



**COLORADO RIVER**  
 LAVA FALLS RAPID LOCATED 179 MILES BELOW LEE'S FERRY  
 APPROXIMATE FLOW TIME FROM GLEN CANYON DAM - 32-38 HOUR



Tuesday's release This is Tuesday's peak again, having reached Bedrock rapid in another six hours. The flow peaked at about 35,000 cfs. The predicted summer peaks have decreased by almost 10,000 cfs, the lows have risen by 4-5,000 cfs. The differences between historic and predicted patterns have also diminished.

At Lava Falls rapid, the general flow pattern is well established. The peaks of the predicted summer patterns have decreased by almost 10,000 cfs, the lows have risen by 4-5,000 cfs. The differences between historic and predicted patterns have also diminished.

Answered below are two of the questions asked at the recent Flagstaff meeting that relate to the predicted flow patterns. Future newsletters will attempt to answer other questions that are frequently asked by the public about this study.

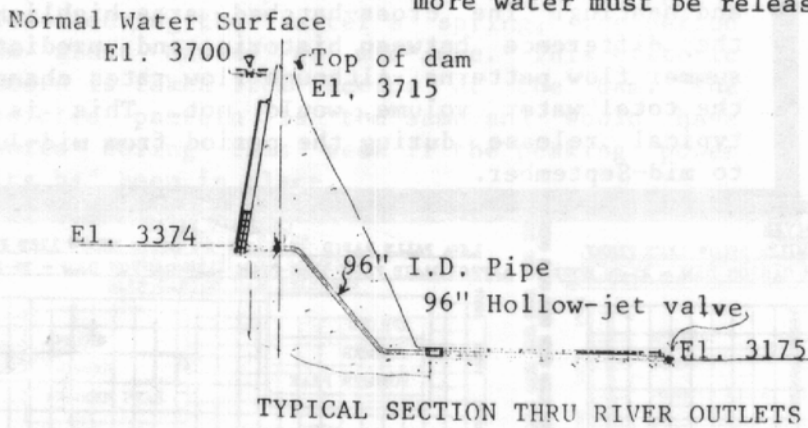
#### WHY IS 40,000 CFS THE MAXIMUM PREDICTED FLOW?

The maximum flow is based upon the physical limitations of the dam's river outlet tubes, which would be used to produce peaking power. The tubes are 96-inch diameter steel pipes located in the left abutment of the dam. Engineers at Water and Power's Engineering and Research Center in Denver have calculated that the maximum capacity of the tubes would be reduced to about 7,000 cfs when turbines are installed and operated for peaking power production. The 40,000 cfs maximum is derived from the sum of 7,000 cfs and the 33,000 cfs capacity of the existing main power units on the dam.

#### HOW WOULD THE ELEVATION OF LAKE POWELL INFLUENCE THE SIZE OF WATER RELEASES THROUGH THE PEAKING POWER PLANT?

More power can be produced from a higher reservoir because of the additional water pressure or "pressure head" through the river outlet tubes. The illustration shows the maximum water surface of Lake Powell of about 3,700 feet. The elevation of the river is about 3,130 feet. As the reservoir elevation drops, the pressure head lessens and more water must be released through the tubes to

produce the same amount of power. At a reservoir elevation of 3,580 feet, the full 7,000 cfs flow is required to produce the maximum power of the generators. Above 3,580 feet, the maximum power can be produced with less flow; below that elevation, the maximum power of the generators would never be produced because of the 7,000 cfs flow limitation.



\*\*\*\*\*

A package of information containing reports on completed studies will be available for public inspection by the end of May at the locations below. The package will consist of the aerial photoanalysis and the profile analysis of beaches in the Grand Canyon conducted by Dr. Robert Dolan and the hydrographs, presented last month in Flagstaff, of the "typical" or more common predicted releases from the dam. The hydrograph package will include a description of the more important characteristics of the flow patterns, power generation curves throughout the year for Glen Canyon Dam and probability curves for future Lake Powell elevations.

River Unit Building  
Grand Canyon National Park Headquarters  
(South Rim)  
Grand Canyon, Arizona

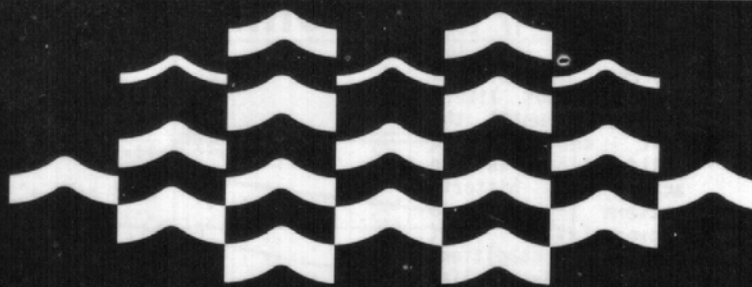
Flagstaff Main Library  
11 W. Cherry  
Flagstaff, Arizona

Durango Projects Office  
Water and Power Resources Service  
832 E. 2nd Ave.  
Durango, Colorado

U.S. Fish and Wildlife Service  
Ecological Services  
2934 W. Fairmount Ave  
Phoenix, Arizona

Page City Library  
697 Vista Ave.  
Page, Arizona

# Public Involvement Newsletter



Newsletter Number 6  
August 1981

Glen Canyon Dam  
Powerplant Expansion Study

This newsletter presents typical future flow patterns on the Colorado River with a 250-MW addition to the Glen Canyon Dam when Lake Powell is at a low reservoir elevation. The last newsletter presented flow patterns associated with high reservoir conditions and pointed out that those were the most likely conditions for the foreseeable future. On the third page we explain our prediction that Lake Powell will remain at a high elevation.

On the back page we describe how and where the electricity is sold after it is generated at Glen Canyon Dam. This explanation was prompted by recent magazine and newspaper articles and many letters we've received from the public that have contained comments which reflect a common belief that Glen Canyon power is sold primarily outside the mountain west region.

The agency's name was recently changed from the Water and Power Resources Service back to the Bureau of Reclamation.

## STATUS OF THE STUDY

With the concurrence of the planning team, we have dropped the 125-MW alternative from further consideration. Appraisal-level analysis has shown it to be infeasible. Appraisal-level estimates of social, biological and recreational impacts and appraisal benefits and costs according to Water Resource Council multi-objective planning criteria will be developed for the 250-MW alternative and presented to the technical subteam leaders in a planning team meeting. The information will be presented to the public in meetings in Page, Flagstaff and Phoenix, Arizona and in Denver, Colorado in late September. The purpose of the public meetings will also be to receive comment from the public concerning further investigation of the 250-MW alternative. By mid-October, a decision will be made, based on the appraisal analyses and on planning team and public input, on whether to proceed with a feasibility-level investigation of the 250-MW alternative or to conclude the investigation.

## SCHEDULE

This is a revised schedule of future events.

Public meetings on size selection.....	late Sept 1981
Size selection.....	early Oct 1981
Feasibility Analysis and Report Preparation.....	late 81-late 82
Environmental Impact Statement Preparation.....	late 81-late 82
Regional Director's Proposed Report (Draft Feasibility Report).....	early 83
Regional Director's Feasibility Report (Final Feasibility Report).....	Fall 83
Draft Environmental Impact Statement (followed by comment period).....	early 83
Final Environmental Impact Statement.....	Summer 84

Copies of Dr. Robert Dolan's reports on potential recreational and erosional impacts and the flow information produced by this office are now available for public inspection in the Denver Public Library, Government Documents Section.

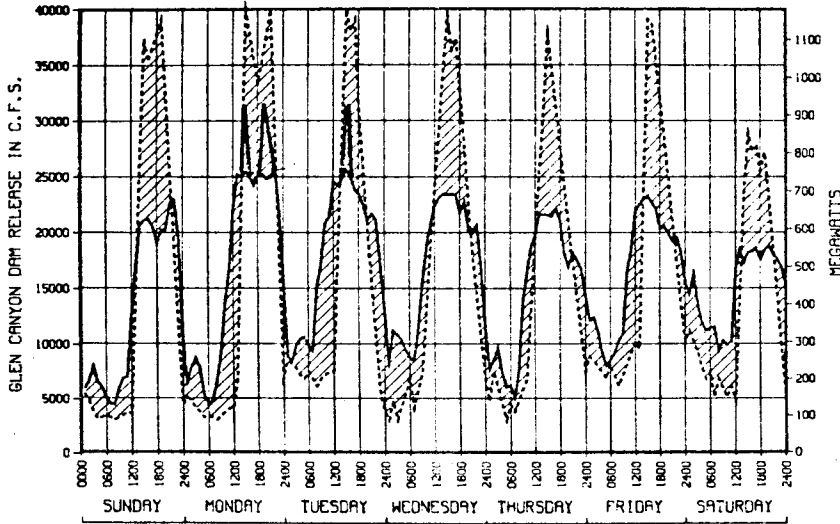


The graph shows what release patterns at the dam would look like during a typical summer week if Lake Powell were at a low reservoir elevation, a condition not likely to occur until the next century. The solid line is an actual historic pattern and is representative of current conditions while the dotted line is representative of flows that would occur with the 250-MW addition. The caps on the solid line signify the extra power derived from rewinding the existing generators, a project now underway. This extra power is shown being used on Monday and Tuesday and is reflected in the 24-hour hydrographs below.

The 40,000 cfs releases shown here would occur mainly in the summer and only under low reservoir conditions. Historic minimum releases of 3,000 cfs would be maintained although their

# Preliminary Flows at Low Reservoir

TYPICAL GLEN CANYON RELEASE  
SUMMER SEASON AT LOW RESERVOIR ELEVATIONS



durations would at times be a few hours longer than at present.

Wednesday's release pattern on this graph is displayed again in Figure 1 below. Figures 2-5 show flow patterns at points downstream during the same 24-hour period as in Figure 1 and reflect the continual dampening of the release pattern as it travels through the Grand Canyon.

The figures below are hydrographs of the same locations presented in Newsletter #5. Summer flows at present (labeled "SUMMER") and in the future with the 250-MW addition (labeled "SUMMER 250") are shown, as in the weekly hydrograph. Only a single spring flow is displayed because future spring flows at low reservoir elevations with the 250-MW addition would be similar to present conditions.

TYPICAL RELEASE AND FLOW PATTERNS  
APRIL AND AUGUST LOW RES. ELEV.  
GLEN CANYON DAM RELEASES

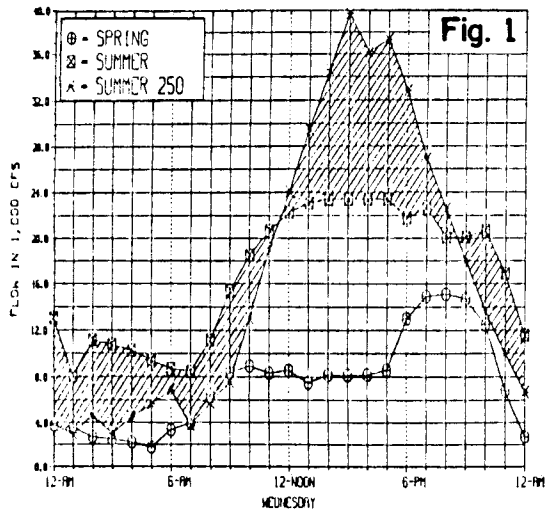
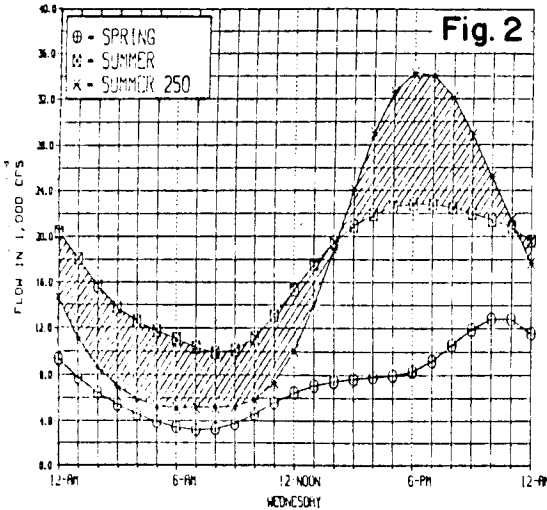


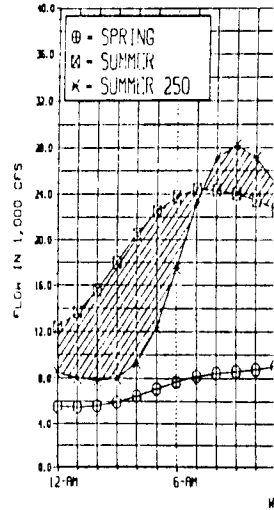
Figure 1 is the release pattern at Glen Canyon Dam on the same Wednesday depicted above. The "SUMMER 250" release peaks at 3PM and is 17,000 cfs higher than that which occurs with present summer conditions. The large difference is due in part to the absence of the generator rewind flows in Wednesday's release. Note that the difference between the two is about 7,000 cfs on Monday and Tuesday's releases on the graph above.

TYPICAL RELEASE AND FLOW PATTERNS  
LEE'S FERRY LOCATED 15 MILES BELOW GLEN CANYON DAM  
APPROXIMATE FLOW TIME FROM GLEN CANYON DAM - 2 HOURS



The jagged appearance of the hydrograph in Figure 1 has smoothed considerably by the time the flows have arrived at Lee's Ferry two hours later. The "SUMMER 250" peak flows have diminished to about 34,000 cfs. Future "SUMMER 250" low flows, arriving in the morning, are about 5,000 cfs lower than present "SUMMER" low flows.

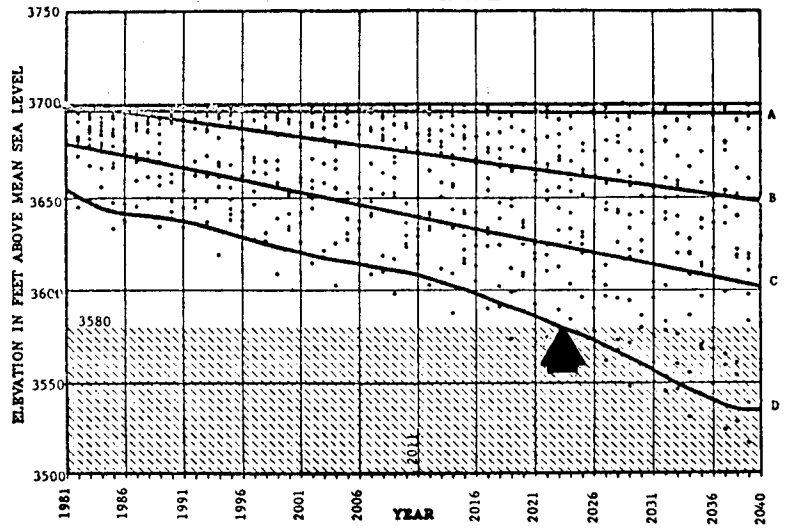
TYPICAL RELEASE AND FLOW PATTERNS  
HANCE RAPID LOCATED 15 MILES BELOW GLEN CANYON DAM  
APPROXIMATE FLOW TIME FROM GLEN CANYON DAM - 2 HOURS



The peak flows at Hance Rapid occur Tuesday's peak at the dam. The 40,000 cfs "SUMMER 250" release has a peak flow of about 28,000 cfs greater than the present "SUMMER" flows.

The likelihood of a low reservoir is shown on this chart which depicts the probable occurrence of future Lake Powell reservoir elevations. It was derived by standard techniques for predicting the probable occurrence of hydrologic events using historic data. As explained in the last newsletter, we define a low reservoir as one below 3,580 feet (shaded area) since below that elevation a maximum release would have to occur for full power production. Lake Powell has a maximum elevation of 3,700 feet and a minimum elevation of 3,374 feet. It is now at an elevation of about 3,680 feet.

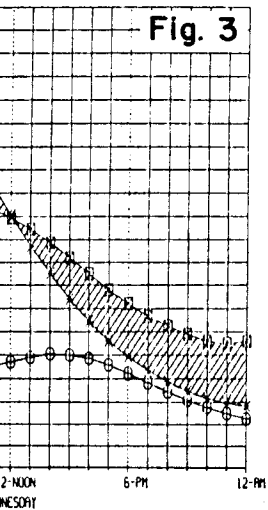
## Probable Lake Powell Elevations



Lines A through D separate the graph into four sections according to the probable occurrence of a given reservoir elevation. In any year, 25% of probable elevations are above Line A, 50% above Line B, 75% above Line C and almost 100% above Line D.

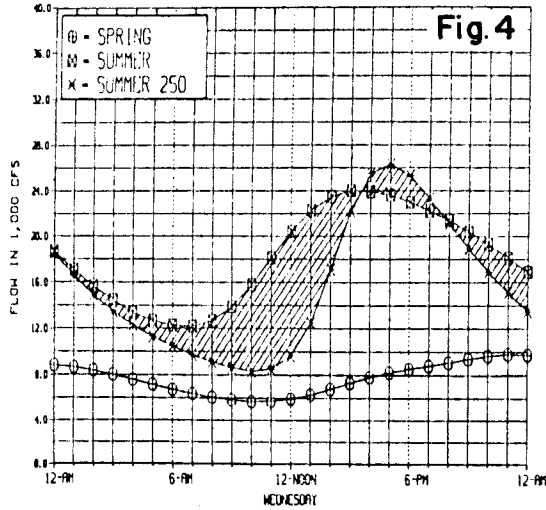
Looking at Line D, it is evident that an elevation below 3,580 feet is unlikely until about the year 2023 (arrow). A considerably higher elevation is more likely in that and future years.

AND FLOW PATTERNS  
77 MILES BELOW LEE'S FERRY  
GLEN CANYON DAM - 14-19 HOURS



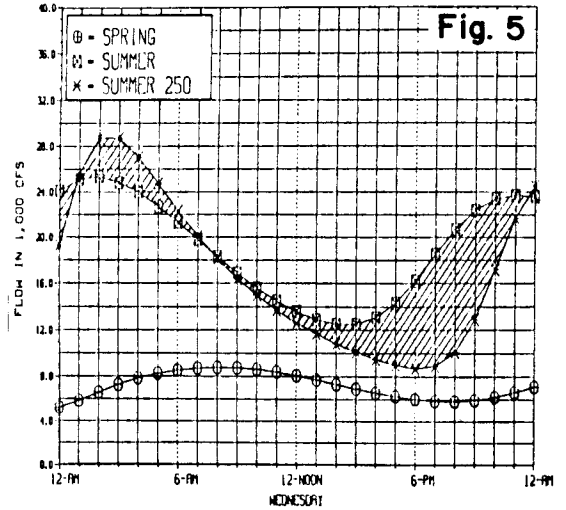
appearing in the  
nce Rapid are  
releases from  
000 cfs "SUMMER  
s diminished to  
is about 4,000  
than present

TYPICAL RELEASE AND FLOW PATTERNS  
BEDROCK RAPID LOCATED 130 MILES BELOW LEE'S FERRY  
APPROXIMATE FLOW TIME FROM GLEN CANYON DAM - 25-29 HOURS



The peak flows here are again Tuesday's release from the dam. They have diminished further by the time they reach Bedrock Rapid. At this point the general flow pattern (maximum and minimum flows and the distance between consecutive peaks and troughs) is well established.

TYPICAL RELEASE AND FLOW PATTERNS  
LAVA FALLS RAPID LOCATED 179 MILES BELOW LEE'S FERRY  
APPROXIMATE FLOW TIME FROM GLEN CANYON DAM - 33-39 HOURS



The peak flows arriving early in the morning at Lava Falls Rapid are Monday's release from the dam. Low flows occur in the afternoon. The "SUMMER 250" low flows are almost 4,000 cfs lower than present "SUMMER" low flows and arrive later.

# CRSP Power Marketing

All Colorado River Storage Project power, which includes power from Glen Canyon Dam, is sold within the strictly-defined marketing area shown on the map. The area includes 4 counties in Nevada and a small portion of California east of the 115th meridian (in recent years, however, no contracts have existed with users in the California portion of the marketing area). Within this region

are over two hundred preference customers who receive power under long-term contracts with the Western Area Power Administration, which markets and controls power deliveries from its Power Operations Center in Montrose, Colorado. Projections of a future demand for peaking power by preference customers within the marketing area are the basis of this feasibility study.

Glen Canyon Dam generates about 65% of the energy produced by the CRSP system, which includes five other powerplants and an interconnecting transmission system. Most

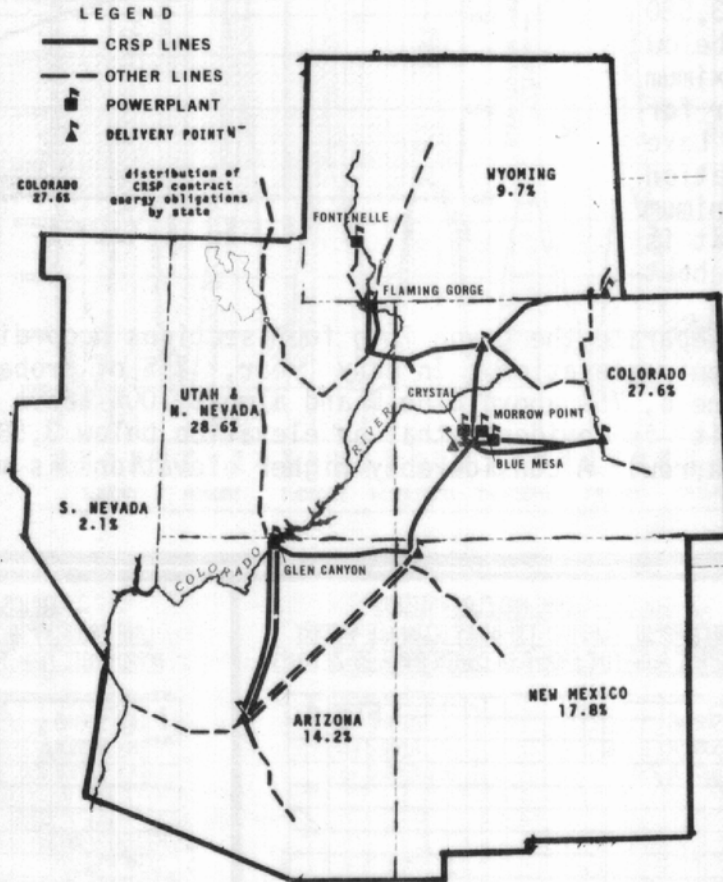
customers are able to tie directly into the federal transmission network, but a few receive power through the lines of a private utility such as Utah Power and Light.

The map shows the percentage distribution of contract energy sales. More than half of those sales are in Colorado and Utah.

Use by preference customers accounts

for the consumption of all CRSP hydrogeneration. Electricity in excess of that required for contract obligations is at times available for sale within as well as outside the marketing area. This arises as a result of the purchase of coal-fired energy and exchanges Western makes to ensure that contract commitments with preference customers are satisfied during years of below average water supply. Excess energy is also used to displace oil- and gas-generated power during periods of peak use. On an annual basis, it accounts for about 12% of total sales.

**POWER MARKETING AREA**  
Colorado River Storage Project



\* \* \*

\* \* \*

## WHO ARE PREFERENCE CUSTOMERS?

Section 9(c), the "preference clause" of the Reclamation Act of 1939 requires that preference in the sale of federally-produced power be given to "municipalities, and public corporations or agencies, and cooperatives and other nonprofit organizations." Preference customers are mountain west communities, rural electric co-operatives, irrigation districts and federal and state agencies, including Indian reservations. Several are listed here along with the amount of annual power each is contracted to receive. Salt Lake City, Phoenix and Denver are served by other entities and are not preference customers.

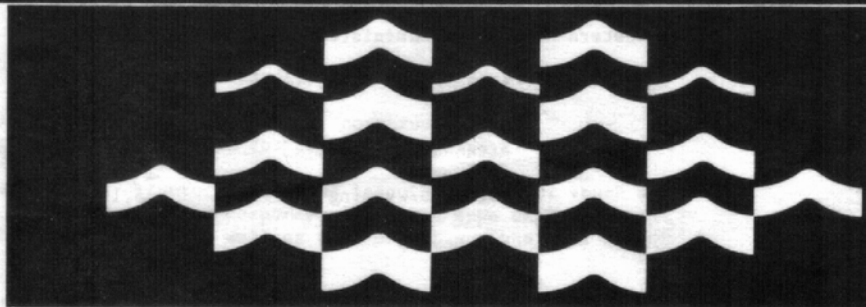
ARIZONA		(kW)
Navajo Tribal Utility Authority	Page	45,776
Ak-Chin Indian Community		14,890
Ariz. Public Power Auth.		8,260
Chandler Heights Citrus Irr.		49,763
Colorado River Indian Res.		720
Ocotillo Water Cons. Dist.		1,270
Salt River Project		1,900
		149,500
COLORADO		(kW)
Colorado Springs		85,000
Delta		2,000
Fort Morgan		17,250
Intermountain REA		38,250
Pueblo Army Depot		8,500
Silt Water Cons. Dist.		750

NEW MEXICO		(kW)
Aztec		4,791
Energy Research & Dev. Adm.		62,109
Farmington		38,160
Truth or Consequences		11,940

UTAH		(kW)
Brigham City		20,280
Defense Depot Ogden		8,490
ICPA (34 municipalities & REA's)		471,886
Levan		951
Provo		131,200
St. George		49,800
Strawberry Water Users Assn.		34,427

For more information and a complete list of CRSP customers contact the Western Area Power Administration Area Office in Salt Lake City, Utah.

# FACT SHEET



CRSP POWER PEAKING CAPACITY - GENERATION AT OUTLET  
GLEN CANYON DAM, ARIZONA  
FACT SHEET  
September 21, 1981

This fact sheet is being delivered prior to public meetings to help inform the public about the impacts associated with a plan to increase power generation capacity at Glen Canyon Dam by 250 megawatts (MW). The following information along with comments received at the upcoming public meetings will be used to make a decision whether or not to proceed into a feasibility level study for additional power generation capacity at Glen Canyon Dam. Should a decision be made to continue into a feasibility level study, then more detailed studies will be conducted and a feasibility report and an Environmental Impact Statement will be written. Should a decision be made otherwise, then the study would be concluded.

Again, as a reminder, the public meetings where the public can comment on the power peaking capacity study for Glen Canyon Dam will be held at the following locations:

DATE and TIMES	LOCATION
September 29, 1981 10:00 a.m. - 12:00 p.m. 7:30 p.m. 10:30 p.m.	Maricopa County Supervisors' Auditorium 205 West Jefferson Phoenix, Arizona
September 30, 1981 2:00 p.m. - 4:00 p.m. 7:30 p.m. - 10:30 p.m.	Flagstaff High School 400 West Elm Flagstaff, Arizona
October 1, 1981 2:00 p.m. - 4:00 p.m. 7:30 p.m. - 10:30 p.m.	Page High School 460 South Navajo Drive Page, Arizona
October 5, 1981 2:00 p.m. - 4:00 p.m. 7:00 p.m. - 9:00 p.m.	Denver Public Library (Wyer Auditorium) 1357 Broadway Denver, Colorado

The meetings will follow a format as described below:

- I. Introduction
- II. A Short Presentation of Information About the Study by the Durango Projects Office
- III. Individual Comments/Statements Presented by the Public<sup>1/</sup>
- IV. Questions and Answers About the Study
- V. Summary and Conclusion of the Meeting

<sup>1/</sup>A comment sheet will be handed out at the beginning of the meeting for those who would like to write down their comment rather than make a verbal comment. These sheets will be collected at the end of the meeting.

CORONADO #3  
1992 MAYBE

The following is a summary of the data collected to date.

POWER DEMAND

Projected power resource requirements by area for preference and non-preference customers as of January 1980 prepared by Western Area Power Administration:

Area	Additional Resource Requirements for the Year 2000	
	Preference	Non-preference
Arizona, et. al.	898 MW S (120) MW surplus	5,077 MW
Colorado/Wyoming	-606 5,153 MW	3,683 MW
New Mexico	-174 597 MW	917 MW
Utah	-493 1,719 MW	4,718 MW
Total	7,349 MW	14,395 MW

\* \* \* \* \* - 374 MW \* \* \* \* \*

ECONOMICS<sup>1/</sup>

Total Costs		Benefits <sup>5/</sup>	
Construction	\$165,428,000	Annual Power Benefit	\$30,000,000
Interest during construction <sup>2/</sup>	31,132,000	Negative Recreation Benefit <sup>6/</sup>	-165,000
<u>Total Capital Cost</u>	<u>\$196,560,000</u>	<u>Net Annual Benefit</u>	<u>\$29,835,000</u>
Annual Costs		Benefit/Cost Ratio 1.98/1.00	
Annual Capital cost <sup>3/</sup>	\$14,508,000	Installed Cost Per kilowatt	\$790
Annual OM&R <sup>4/</sup>	589,000		
<u>Total Annual Cost</u>	<u>\$15,097,000</u>		

1/January 1981 price level.  
 2/Based on 6-year construction period and 7.375 percent interest compounded  
 3/Based on capital recovery factor of .07381 (7.375 percent and 100 years).  
 4/Operations, Maintenance, and Replacement Costs  
 5/Benefits are figured by multiplying increased capacity by \$120/kilowatt and subtracting \$165,000 for recreational losses.  
 6/Losses have only been assessed at a qualitative level and with a qualitative reduction in the rafting experience, a quantitative reduction in use could also be imposed by the National Park Service.

\* \* \* \* \*

ENVIRONMENTAL QUALITY

ECOLOGICAL SYSTEMS:

- Riparian or Streamside Habitat: Under worst-case conditions, approximately 15% of the existing riparian habitat would be lost over the long-term, based on an aerial survey vegetation survey. Projected normal operations of the dam would also impact the riparian habitat but to a much lesser degree. Aquatic furbearers, such as beaver, would be impacted over the short-term. There may be some slight impacts to other mammals, waterfowl, reptiles and amphibians.
- Aquatic Habitat: Increased seasonal fluctuation in water releases would impact the survival rate of stocked rainbow trout fry and fingerlings. There would be no impact to adult and juvenile trout, other than a possible mild adverse effect due to losses in the food base. Native fish would not be further impacted.
- Endangered Species: The humpback chub and peregrine falcon would not be further adversely impacted.

RECREATIONAL RESOURCES:

- Beach Camping: Some decrease in the availability of suitable campsites due to high flows. Increase in camping and mooring hazards due to fluctuations.
- River Navigability: Running rapids adversely impacted by some increase in hazards and congestion at low flows, but beneficially impacted in many cases by high flows.
- Fisherman Access: Increased periodicity and duration of low flow would inhibit upstream movement of fishing boats between Lee's Ferry and Glen Canyon Dam.

VISUAL QUALITY:

Short-term impact during construction activities. Addition of new power house would detract from visual aesthetics. Slight loss in visual quality because of increased erosion along river bank.

ARCHAEOLOGICAL AND

HISTORICAL RESOURCES: No adverse impact associated with project

SOCIAL WELL-BEING<sup>1/</sup>

The following appraisal considers the impacts for the community of Page, Arizona.

Demography (population)	Boom cycle expected to start again with influx of construction workers, thereby interrupting Page's push for stable population growth.
Employment	Town seeking stable employment structure including long term work for youth and an addition of mid level management and corporate executive type employees. Project expected to hinder this goal as well as that of solving the need for more jobs for women.
Income	Page is characterized as a community of service level employees versus highly paid construction workers with the two groups having a tendency to polarize; a more balanced income structure is being sought which construction worker influx from the peaking power project would retard.
Economic Base	Town seeking stable economic growth and/or maintenance of current status. Construction worker influx is expected to retard this, especially if Kaiparowits coal development begins. River running industry is described as the backbone of Page's economy and locals fear it will be damaged by the project.
Education	Elementary school at capacity for the present. If worker influx were permanent, it could justify new school building. Otherwise construction worker influx would require double sessions which parents do not want.
Health and Social Services	Alcoholism is described as a problem in Page because of it being a construction and reservation town. Assaults are linked with alcoholism. Given the tradition of construction workers for drinking heavily and getting into trouble, the project would exacerbate this existing problem.
Law and Justice	Page is considered a relatively safe community. No need to lock doors and crime is minor in nature. Construction workers are expected to add to incidence of, assaults and drinking related crime.
Water and Sewer	Page at capacity for water and sewer at this time. Using all the water allocated. Boom situation from construction workers influx could exacerbate this.
Transportation	If river running industry damaged, airline service quality to Page would be cut.
Housing/Land	Depending upon the lead time given to the city, there is enough mobile home housing to cope with construction worker influx. Page is in need of "lead time" so it can prevent newcomers settling the City of Page in its hinter lands. Little conventional housing is available due to excessive prices.
Recreation	Cultural amenities and opportunities for part time activities especially needed by women in Page. Given few available jobs, shopping and the like, women are described as bored and disliking Page. Project would enhance this dissatisfaction since more women would have less to do.
Family	Women unhappy in Page because of reasons stated under recreation and employment. Potential for marital breakup increased by wife dissatisfaction with Page and husband's odd hours of shift work. Increased women in the community and husbands' odd shift hours are anticipated to increase the number of families moving from Page to save their marriage or to get a divorce in an anonymous place.
Community Cohesiveness	"Interscrimages" are described as occurring between the town and the power plant on account of wage differences and consequent price inflation. Construction worker influx is expected to heighten this trend in addition to other social problems associated with a transient work force.
Communication	None stated by informants.
Fire Protection	None stated by informants
Religion	None stated by informants.

<sup>1/</sup> During informal conversational interviews with key citizens living in and around Page, Arizona, the subsequent social issues emerged.



# DEPARTMENT of the INTERIOR

## news release

OFFICE OF THE SECRETARY

Kallman (202) 343-3171

For Release October 29, 1981

### WATT DIRECTS GLEN CANYON PEAKING POWER STUDY BE DROPPED; CITES ENVIRONMENTAL EFFECTS AND COSTS

Secretary of the Interior James Watt said today he wholeheartedly endorsed stopping a study of new hydroelectric peaking power at Glen Canyon Dam on the Colorado River because "it's the wrong idea in the wrong place at the wrong time."

As a result, Interior's Bureau of Reclamation has discontinued a study ordered by the former administration, and will look instead at other possible sites for peaking power in the Colorado River Basin Project's power marketing area--a vast region covering large portions of Colorado, Utah, New Mexico, Wyoming, Nevada, Arizona and southern California.

"After consulting with Commissioner of Reclamation Bob Broadbent, I became convinced that continuing the Glen Canyon study would serve no useful purpose," Watt said.

"At issue is a key environmental concern--the integrity of the Colorado River downstream from the dam as it flows through Grand Canyon National Park," Watt said. "Peaking power depends on large releases of water during brief periods. It therefore means sharp rises and drops in the level of the Colorado River below the dam.

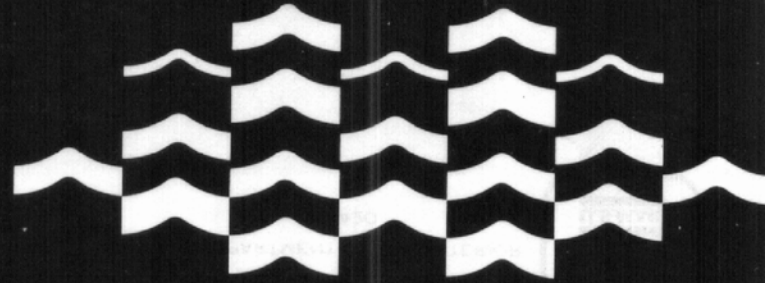
"The National Park Service was worried about what that would do to the streambed, the natural sandbars, vegetation, and fish and wildlife habitat. In addition, thousands of people run the river within the park in boats and rafts, and many of them find it a matchless experience. Raising and lowering the level of the river at periods when power demand is high would inevitably mean fewer float trips because we simply could not allow human lives to be put in such jeopardy," Watt said.

"If there are other good locations we can investigate for hydroelectric peaking power, as Commissioner Broadbent says, we should be concentrating on them. Funds for studies are limited in this period of budget austerity. Let's put our dollars to better use by looking for sites where the tradeoff is more nearly acceptable. That's just good hardheaded economics," Watt concluded.

The Glen Canyon investigation, under way since late 1977, was to determine feasibility of boosting the capacity at Glen Canyon powerplant by 250 megawatts, a venture which would require two additional generators to be installed at the outlet works.

Broadbent said several other sites may prove more acceptable than Glen Canyon, and have the potential to produce more power.

# Public Involvement Newsletter



Newsletter Number 7  
November 1981

Glen Canyon Dam  
Powerplant Expansion Study

## FEASIBILITY STUDY CONCLUDED

The decision to conclude the investigation of producing additional peaking power at Glen Canyon Dam was made by the Commissioner of Reclamation, Robert N. Broadbent and Clifford Barrett, Upper Colorado Regional Director, on October 21, 1981. The purpose of the study was to determine the feasibility of increasing the peaking power capacity at Glen Canyon Powerplant by 250 megawatts by adding two additional generators to the outlet works and to study the related impacts of such an increase in peaking capacity. The study began in 1979 as part of a regional study to determine the feasibility of developing peaking power resources to meet future power demands. It was expected that it would have taken another year to complete feasibility studies.

Based upon appraisal level estimates, the benefits for the proposed project exceed the cost by 1.98 to 1. However, the investigation is being concluded for two reasons: there was a lack of strong public support for the project and termination will help in achieving budget cuts sought by President Reagan. Comments at public meetings held in Phoenix, Flagstaff, and Page, Arizona and Denver, Colorado generally did not support continuing the Glen Canyon study. Much public concern was expressed over the possible interference with public rafting use in the Grand Canyon.

The Durango Projects Office is concluding its functions associated with the study. The planning teams which were part of this study will no longer need to meet. This includes the planning team and the biological, recreational, social, and power subteams. We appreciate the time and efforts contributed by the members of these teams and the public.

# # #