RECEIVED
Bur of Land Management
NEVADA LAND OFFICE
10:00
A. M.
MAY 30 1972
NEVADA STATE OFFICE
RENO, NEVADA

DRAFT

ENVIRONMENTAL ANALYSIS

PROPOSED
SALMON FALLS FISH BARRIER

Prepared By:

Contact Resource Area
Elko District
Elko, Nevada

May 26, 1972

REVIEWED BY:

George W. Ramey
Area Manager

Jerry E. Acker (acting)
District Manager

INDEX

ENVIRONMENTAL ANALYSIS
SALMON FALLS FISH BARRIER

ILLUSTRATIONS:

APPENDIX I

ENVIRONMENTAL ANALYSIS SUMMARY

SALMON FALLS FISH BARRIER

(x) Draft ( ) Final

RESPONSIBLE FEDERAL AGENCY:

Bureau of Land Management: Nevada

I. TYPE OF ACTION:

(x) Administrative ( ) Legislative

II. BRIEF DESCRIPTION OF ACTION:

Construction of a fish barrier structure on Salmon Falls Creek to block upstream migration of rough fish species. The project will allow habitat management for game fish species and enhance habitat management for Lahontan Cutthroat Trout, an endangered species.

III. SUMMARY OF ENVIRONMENTAL IMPACTS AND ADVERSE ENVIRONMENTAL EFFECTS:

A. Loss of livestock forage in the amount of approximately two AUMs.

B. Benefit to game fish habitat.

C. Conflict with natural scenery at the construction site.

D. The stream channel will agrade above the structure to the confluence with Shoshone Creek.

IV. ALTERNATIVES CONSIDERED:

A. Fish barrier construction to facilitate habitat management.

B. No action on the proposal.

C. Construction on alternative site.

V. ALL FEDERAL, STATE AND LOCAL AGENCIES FROM WHICH COMMENTS HAVE BEEN REQUESTED:

Draft Analysis - No comments have been requested.

VI. DATE DRAFT STATEMENT MADE AVAILABLE TO CEQ AND THE PUBLIC:

Draft Analysis - No statement made available at this time.

ENVIRONMENTAL ANALYSIS

SALMON FALLS FISH BARRIER

PROJECT #4267

I. PROJECT DESCRIPTION:

A. Proposed Action:

The proposed project consists of constructing a 9' high drop structure across Salmon Falls Creek and reshaping approximately 200 feet of stream channel for improved hydrologic function and bank erosion control. The structure is to be constructed of sheet piling which will be tied into bedrock and the channel banks. Concrete will be used to form an apron on the downstream side, abutment walls and a trap for holding Kokanee Salmon.

B. Purpose and Problem:

1. Purpose:

The purpose of the project is to block upstream migration of rough fish species from Salmon Creek Reservoir, a large, deep impoundment located approximately eight miles downstream.

2. Problem:

The problem is that effective rough fish control efforts on the Salmon Falls Creek Basin have been thwarted by the migration of rough fish species from the large reservoir. Due to size, water depth and toxicant characteristics, treatment of the reservoir is not practical nor economical. Past eradication effort along the stream system has proved

significant for a period of approximately four years; however, at the end of that period of time, the rough fish species accounted for approximately 95% of the total population and fishermen use of the stream dropped dramatically. [1/]

The alternatives are:

a. Continue the eradication program each five years as Nevada Fish & Game Department funds permit.

b. Block migration of rough fish species in order to maintain a quality fishery through elimination of undesired competition for food and habitat. The time span between required treatment would be approximately tripled [2/] as compared to the present situation.

c. Do nothing and let the fishery deteriorate.

C. Location:

The site found most desirable for construction from the standpoint of economics, feasibility and environmental aspects lies approximately two miles upstream from the Idaho-Nevada State boundary. [3/]

The legal description is:

T. 47 N., R. 64 E., Section 10, NW¼SE¼,
Mount Diablo Meridian.

(See Illustrations I and III.)

D. Schedule:

The project was submitted as a program package request for FY 70 and revised as a program package for Lahontan Cutthroat

Trout Habitat in FY 71, following completion of the Salmon Falls Creek Habitat Management Plan. Foundation studies were conducted in the fall of 1970. Engineering and design were accomplished in the closing months of FY 71, following several meetings with Fish & Game Officials of both Nevada and Idaho. Construction started in September 1971, and at the present time, is 60% complete. (See Illustrations III, IV and V.)

II. ENVIRONMENTAL ASPECTS - BEFORE:

A. Physical Factors: [4/]

1. Climate:

The climate of the area is best described as semi-arid. Precipitation varies from approximately 9" at Contact and Jackpot, to greater than 20" on the headwater areas. Temperatures for the area vary from -30° to 100°F.

2. Vegetation:

Vegetative cover of the area is typified by Big Sagebrush (*Artemisia tridentata*), Black sagebrush (*Artemisia nova*), Bluebunch wheatgrass (*Agropyron spicatum*) and Basin Wildrye (*Elymus condensatus*) on the side hills and surrounding benchlands. The valley bottom supports a cover consisting of Willows (*Salix, sps.*), Wild rose (*Rosa, sps.*), Big Rabbitbrush (*Chrysothamnus nauseosus*), Big Sagebrush (*Artemisia tridentata*), Streambank wheatgrass (*Agropyron riparium*), Basin wildrye (*Elymus condensatus*), Sandberg bluegrass (*Poa secunda*), Sedges (*Carex, sps.*), and

Cheatgrass (Bromus tectorum), Phlox (Phlox longiflours), Thistle (Cirsium, sps.), Aster (Aster,sps.) and False dandelion (Agoseris accuminata).

3. Soil:

The soils of the project site consist of: Clay-loam on the hillsides and benchlands and Silty-loam on the valley bottom.

4. Topography:

The project site lies within a canyon gorge which is 260' deep and surrounded by sharp cliffs and steep hillsides. Above the canyon, are table lands typical of the region and common on the Snake River Plain of Southern Idaho.

5. Geology:

The formations of the area originated as volcanic activity during the Tertiary and Quarternary Ages. Rocks of the area consist primarily of Rhyolite and Basalt. The stream channel follows an old fault line from approximately the confluence of Shoshone Creek, downstream to the Snake River.

6. Water:

Streamflow norms vary from 55 c.f.s., to 436 c.f.s..5/ Water quality leaves much to be desired in comparison with an ideal trout stream. During high water periods and the irrigation season, the stream appears muddy. The water quality improves somewhat during low summer and late season flows. The stream is no longer wild and free-flowing in character due to the Salmon Dam and Boies Ranch irrigation diversion.

7. Air:

Typical of non-industrialized rural areas, the air of Northern Nevada and Southern Idaho is clear and clean.

8. Other:

None identified.

B. Land Use:

1. Livestock:

Cattle from the WD Ranch have access to the canyon by way of a ranch-constructed primitive road. Good quality forage is found on the scattered meadows adjacent to the creek and lower slopes of the canyon.

2. Wildlife:

Wildlife species of the area are numerous. Therefore, the major species are listed by type as follows:

a. Mammals:

Mule deer (Odocoileus hemionus) use the area primarily during the winter months; Coyote (Canus latrans) though not a constant resident of the canyon, their presence is common; Bob cat (Lynx rufus) is common within the area; Cottontail rabbit (Auduboni sylvilagus) and Blacktailed jackrabbit (Lepus californicus) have excellent habitat along the creek bottom and Raccoon (Procyon lotor) inhabit the river bottom.

b. Birds:

Chukar partridge (Alectoris graeca) inhabit the steep, brome and bunchgrass hillsides; Hungarian partridge (Perdix perdix) are found in the canyons and draws in

in the area; and Sagegrouse (Centrocereus urophasianus) are found on the table land above the canyon and the canyon bottom along Salmon Falls Creek. Species of other birds and waterfowl inhabit the area in varing degrees of significance.

c. Reptiles:

Great Basin Rattlesnake (Crotalus viridis lutosus) are found throughout the area, primarily along the canyon bottom and in rocky draw areas. Species of lizard and watersnake are also found within the canyon area.

d. Aquatic Species:

The species of game fish are: Brown trout (Salmo trutta), Rainbow trout (Salmo gairdnerii), Lahontan Cutthroat trout (Salmo clarkii henshawi) and Channel catfish (Ictalurus punctatus). Rough fish species are: Bridgelip sucker (Catostomus columbianus), Largescale sucker (Catostomus macrocheilus), Chiselmouth (Acrocheilus alutaceum), Northern squawfish (Ptychocheilus oregonensis), Columbia redside shiner (Richardsonius baiteatus), Snake River speckled dace (Thinichtys osculus subsp.) and Piute sculpin (Cottus beldingi). There are various other types of aquatic insects and animals.

3. Watershed:

The project site lies within a deep canyon, which has a relatively narrow flood plain. The watershed area within the vicinity of the project site is classified as stable;

however, normal channel changes are occurring.

4. Minerals:

   There are no mineral extraction activities within the vicinity of the project site.

5. Recreation:

   The present situation is day-use recreation activity. The use presently made in the vicinity of the project consists of fishing, hiking, and during highwater, approximately ten visitor days of floating. The grave of Henry Jones lies near the construction site and may have historical significance as an unsolved murder.

6. Timber:

   None.

7. Other:

   There are no known archeological sites, nor has evidence of early human inhabitation been noted during project planning.

C. Other Interrelationships:

1. Visual:

   The scenic value of the canyon is very good. The natural seeding consists of low sagebrush and other related shrubs framed by high, vertical, red Rhyolite cliffs on the edges and willow and rose thickets along the stream course. Adding to the grandeur is an occasional lush meadow, interspersed along the sagebrush and willow covered valley bottom.

2. Social:

No adverse effect. Local support for the project comes from sportsmen clubs and the Nevada Fish & Game Conservationists.

3. Political:

The Nevada Congressional Delegation has indicated support for the program through letters addressed to the Salmon River Sportsmen Association and the Elko County Game Board.

4. Economical:

In the package request submitted January 23, 1970, the estimated fisherman days as a result of the project are expected to increase by approximately 7,000 over a five-year period. Data from the same package request estimates a fisherman day to have a value of $10.00, which multiplied by the estimated yearly fisherman use, equals $14,000.00 of increased economic value to the local economy. With the estimated fisherman day valued at $10.00, the project is economically feasible. This was based upon economic analysis done by the Bureau of Land Management Washington Office on September 16, 1970.

III. ENVIRONMENTAL IMPACT OF THE PROPOSAL:

A. Natural Environment:

1. Livestock:

The project will have little impact upon livestock use of the area. Upon completion of the project, a loss of

approximately two AUMs will result from surface striping for materials and the area inundated above the structure. Access to the canyon area will be improved as a direct benefit to the livestock user, resulting from an improved road to the construction site.

2. Wildlife:

There will be minimal adverse effect to wildlife habitat from the proposed project. There will be definite benefit to game fish species through reduced competition for food and habitat. Furthermore, game species will be benefited through eliminating the rough fish depredation of their roe in the spawning beds. Rough fish control is required as only a very small demand for these fish presently exists in the area.

3. Watershed:

The stream channel above the structure will undergo a change over the next few years which will be created by the structure. Deposition will occur above the drop structure and throughout most of the canyon reach upstream to the confluence with Shoshone Creek. A small pond of approximately ten acres in size will be formed. Seepage or evaporation loss will increase; however, this is estimated to be less than one acre foot. The stream bed below the structure may likely undergo changes created by the affinity of water to pick up sediment commensurate with its energy. The effect should not be significantly different than the normal situation as exists at present.

4. Minerals:

No adverse effect.

5. Recreation:

The project site will detract from the natural scenery; however, when considered from the standpoint of the entire canyon area, it has minor significance. The pond above the structure may enhance scenic value.

Float users of the stream will be required to portage around the drop structure. Portages are not uncommon on other streams; therefore, the impact is of minor significance. Furthermore, float use is estimated to increase as fishing improves.

Hiking use of the canyon will not be affected, nor require rerouting as a result of the structure. Access to the middle portion of the canyon will be improved through an upgraded road required for the construction equipment.

Fishing use of the area will be significantly improved through elimination of the rough fish species and the subsequent restocking program. The barrier will effectively stop migration of rough fish species into the rehabilitated stream area.

6. Timber:

No effect.

7. Water:

No adverse effect to water quality.

8. Air:

There will be no lasting effect on air quality. There will

be some air pollution during the construction phase; specifically, as brush and litter piles are burned during site cleanup.

9. Other:

Noise pollution from cascading water will result following the construction of the project. The intensity varies in relation to stream flow. This is not considered to be a significant adverse effect upon other uses of the land. Cascading water may actually enhance recreational use of the site.

B. Cultural Environment:

1. Visual:

The proposed project will not conflict with other cultural features since the site is presently in a virgin state.

2. Political:

The proposed project does not conflict with County zoning or local planning. The area is zoned as "Open space - Agriculture".

3. Social and Economical:

The proposed project has the support of local public-interest groups and projections indicate the project will have favorable impact upon the economy of the area through increased recreation opportunity.

C. Potential for Man-Caused Accidents:

1. Fire:

Good judgment must be exercised in site cleanup to avoid fire spread to surrounding natural areas. During construction

all engines should be equipped with spark arrestors and caution should be exercised when using welding or acetelene equipment. Uncontrolled wild fire within the canyon or on the surrounding hillsides would severely damage or destroy the natural scenic value of the area.

2. Personal Injury:

Workmen on the job during the construction phase of the project will need to exercise safe working habits to avoid accidents. Upon completion of the project, warning signs concerning the drop in the stream should be installed approximately 500 feet upstream to warn float users of the drop structure and direct safe portage on the East bank.

3. Other:

There are no other known hazards.

D. Potential for Natural Catastrophies:

None. The integrety of the structure is designed to function under a 100-year storm event. In all probability, the structure would not fail under a 1,000-year flood event.

E. Unknown or Partially-Understood Impacts:

Noise pollution may result from cascading water following project construction. The impact will probably be of minor significance or may even enhance the environmental value of the site.

IV. MITIGATING MEASURES INCLUDED IN THE PROPOSAL:

A. Site Rehabilitation:

All disturbed borrow areas and the construction site are to be

cleaned up, smoothed and rehabilitated. The District activity specialists shall recommend a seed mixture consisting of grass, forbs and shrubs considered adaptable to the site. Native shrub cutting and introduced species having similar characteristics are to be planted on dike and bank areas and near abutments to hide the construction or blend the project as much as possible with the natural setting.

B. Recreation Facilities:

Day use recreation facilities may be installed provided funds are available. This, of necessity, would be limited.

C. Interpretive Signs to be Installed:

1. Description of the project and purpose.
2. Informative sign along with protective fence marking the grave of Henry Jones.
3. Sign warning of the drop structure in the stream.
4. Sign at the top of the access draw warning visitors to avoid towing trailers to the canyon bottom due to excessive road grade.

V. ADVERSE EFFECT WHICH CANNOT BE AVOIDED SHOULD THE PROJECT BE IMPLEMENTED:

A. Site Conflict:

The construction site and materials borrow areas will conflict with the surroundings even after rehabilitation effort intended to mitigate the effect.

B. Flood Plain:

An area of approximately ten acres above the structure will be flooded for an indefinite period of time pending filling by

stream sediments. Once filled, this area will require several years to become compatible with the surroundings. When viewed from the plus side, the pond may enhance scenic value of the site and benefit aquatic species.

C. Land Use Conflict:

The proposed land use in itself will conflict with the present uses of the land through development of a semi-wild area.

VI. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY:

The project will have no adverse influence upon long-term productivity of the stream and construction site. The benefits from the project will be:

A. An improved game fish habitat above the structure.

B. A temporary reduced sedimentation rate of Salmon Creek Reservoir. The sediment reduction benefit is questionable as amounts and effectiveness are difficult to estimate.

VII. ANY IRREVERSIBLE AND IRRETRIEVALBE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED SHOULD THE PROJECT BE IMPLEMENTED:

A. Land:

Approximately ten acres of land above the structure will become a flood plain for several years following project construction. This land area will remain relatively usuable except for wildlife use by animals found associated with aquatic environments.

B. Water:

There will be increased seepage and/or evaporation loss;

however, the amount is estimated to be less than one acre foot per year.

C. Air:

No adverse impact.

D. Area of Solid Waste:

Stream sediments will be deposited within the flood plain above the structure. In time, the area will become vegetated and the bog above the structure will become insignificant.

E. Construction Material:

Once the project is completed, there will be no further demand for materials except as maintenance is required. The borrow areas will be rehabilitated as much as is feasible.

F. Visual:

The structure, construction site, borrow areas and flood plain will contrast with the surroundings. Rehabilitation work, intended to reasonably mitigate the effect, will be done.

G. Other:

Noise pollution will result from cascading water. This effect cannot be mitigated within the scope of the project.

VIII. ALTERNATIVES:

A. Proposed Action:

1. Benefits:

a. The project will effectively block upstream migration of rough fish species. With this advantage, the Nevada Fish & Game Department can economically control rough fish population within the stream system through a

maintenance eradication program. The time between required treatments will be approximately tripled when compared with the present situation.

b. Lahontan Cutthroat Trout habitat can be maintained in a desired state, free of rough fish competition, as detailed in the Salmon Falls Creek Habitat Management Plan.

c. Through an improved fishery, the fisherman day use of the stream is projected to increase by approximately 1,400 per year.

d. The improved access to the lower canyon area for construction equipment will benefit recreation use of the area.

e. The public relations value of this project is very important.

f. The cascading water may enhance the scenic and recreational value of the site.

g. The ponding of water above the structure may enhance aquatic wildlife and add to the scenic value of the site.

2. Consequences:

a. There will be unavoidable conflict with scenic value at the site location. This will be mitigated through rehabilitation; however, the conflict will exist to some extent.

b. There will be ponding of water and a flood plain created which will involve approximately ten acres.

This effect cannot be mitigated within the scope of the project.

c. There will be an increased opportunity for evaporation or seepage loss. This is estimated to be less than one acre foot per year and will decrease in time as sedimentation takes place.

d. Minor noise pollution within one-half mile of the site will conflict with the present environment. This may actually be an asset instead of a liability.

B. <u>No Action On The Project</u>:

1. <u>Benefit</u>:

a. The natural environment of the canyon will remain relatively undisturbed and in a semi-wild state, except for the primitive road access to the canyon bottom and the power transmission line which crosses the canyon near the site.

2. <u>Consequences</u>:

a. Rough fish migration into the upstream waters will continue to dominate game fish habitat and compromise effort designed to improve the fishery. With the present situation, rough fish eradication must be carried out approximately every five years in order to maintain a desirable fishery.

b. Aquatic habitat suitable for stocking with Lahontan Cutthroat Trout, an endangered species, cannot be maintained under present uncontrolled rough fish populations.

c. The estimated increase of 1,400 fishermen days valued at $14,000.00 per year will not be realized. As a matter of fact, Nevada Fish & Game Department data reveals fishermen use is on the decline for this stream due to declining game fish productivity. This is a significant impact on the local economy.

C. Alternate Sites:

1. Benefits:

None were found to be more advantageous than the present location. The primary site has shallow valley fill overlaying bedrock and was best suited from an engineering standpoint. All adverse effects discussed in previous Sections are also applicable to both the primary and the secondary site locations considered by the Bureau of Land Management engineers.

2. Consequences:

Alternate site locations would unfavorably influence construction costs.

IX. CONSULTATION AND COORDINATION WITH OTHERS:

The project proposal was first suggested in 1962 when the Nevada Fish & Game Department realized the futility of maintaining a quality fishery on Salmon Falls Creek without effective means of blocking rough fish migration. The project was first submitted as a program request in 1966, and then in subsequent years.

An aquatic habitat management plan for Salmon Falls Creek was prepared in 1970. Throughout the period of time from its inception

to the present, the project has been discussed during several sportsmen club meetings and Soil Conservation District meetings, with landowners along the stream system, and the Salmon River Irrigation Company. The project design was coordinated with both the Nevada and Idaho Fish & Game Departments in order to achieve the best design required for the fishery and the needs of the respective organizations. The project design was reviewed and approved for construction on the stream system by the Nevada State Engineer. The project has been studied by the Portland Service Center Fisheries Specialist for feasibility, and an economic analysis has been completed by the Washington Office. Presently, the project is under construction and is approximately 60% completed.

REFERENCES

ENVIRONMENTAL ANALYSIS

SALMON FALLS FISH BARRIER

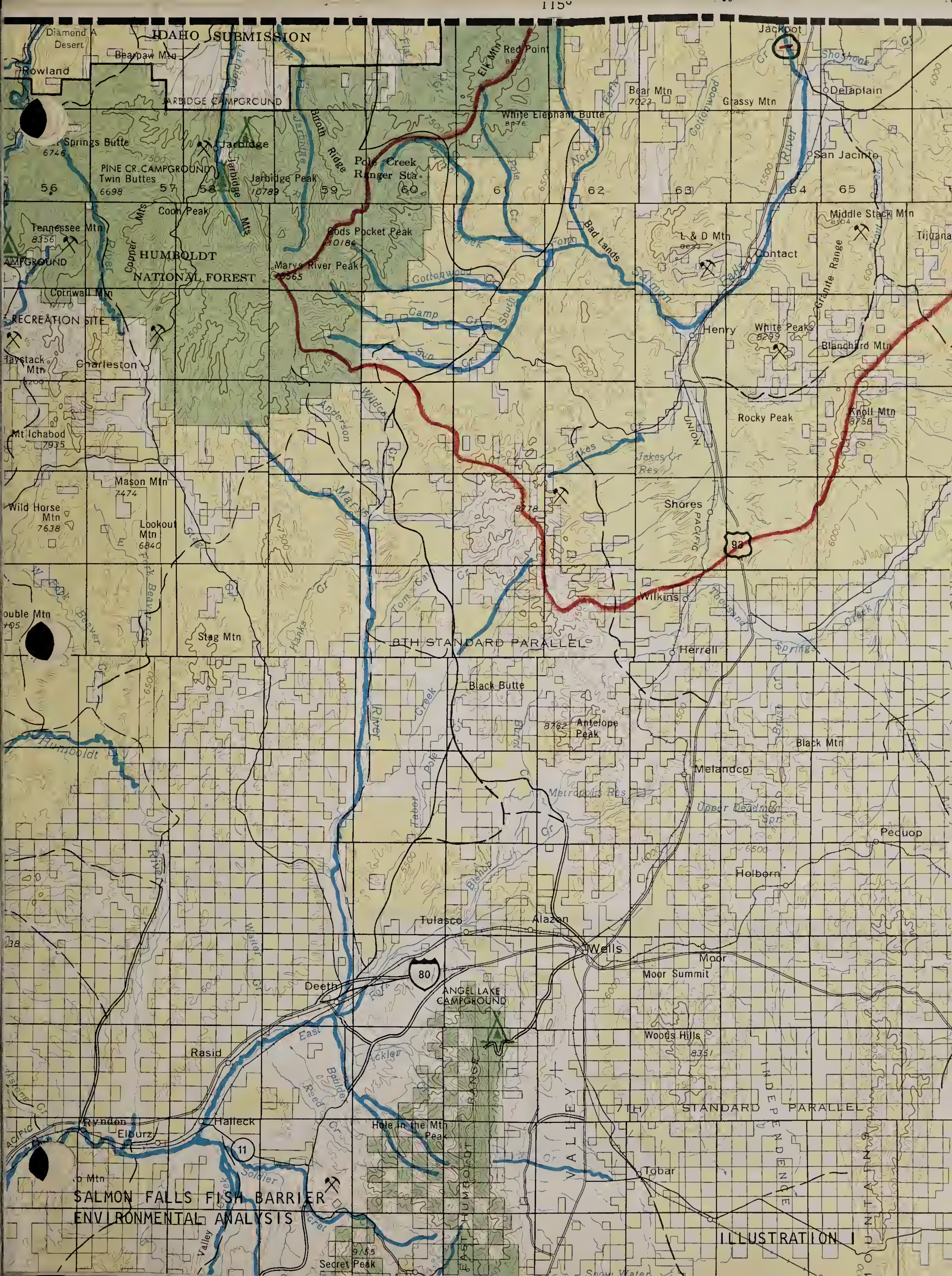
1/ Angler Surveys, Nevada Fish & Game Department

2/ "Salmon Falls River Fish Barrier Angler Use Values",
Pat Coffin, Fisheries Specialist
Nevada Fish & Game Department
August 1970

3/ "Foundation Exploration, Salmon Falls Fish Barrier",
Harding, Miller, Lawsen and Associates, Consulting
Engineers

4/ Goose Creek Unit Resource Analysis

5/ "Water Resources Reconnaisance Series, Report #48",
Page 39, July 1968
Nevada Department of Natural Resources



SALMON FALLS FISH BARRIER ENVIRONMENTAL ANALYSIS

ILLUSTRATION I

and rabbits, attract hunters. And
t provide excellent fishing.

to be an important industry in the
ing gold, silver, copper, lead and
als.

ion pine and juniper, while not im-
, provide cover for wildlife and
nce posts and Christmas trees. The
heir beauty, color and form.

in the Elko District as it is in most
r possible, it is controlled and used
ck, wildlife, recreation, and munici-

ntinuing use and enjoyment of the
range program of land treatment
s been under way for several years.
ed out by BLM in cooperation with

cooperation with range users over
w-producing sagebrush range have

constructed to provide water for livestock and wildlife and help distribute them over the range. Fences, too, have been constructed — hundreds of miles of wire to control the areas and seasons of livestock grazing. Many erosion control structures, such as check dams, detention dams, and gully plugs, have been installed on these public lands. They slow down peak water flows resulting from melting snow or rain storms and allow moisture to filter into the soil, providing a more uniform supply of clean water in the river systems for downstream use.

Protecting the public lands from fire is one of BLM's primary responsibilities. Since delay can mean the difference between burning a few acres or thousands of acres, the most efficient and modern equipment and techniques of fire fighting are used. These include helicopters and light airplanes for reconnaissance and supply; air dropping of chemical fire retardants; four-wheel drive pumper trucks; and well-trained hand crews using shovels, pulaskis, and backpack water pumps.

The public lands of the Elko District are your lands. Use them often and enjoy them, but also learn of their values, how they are used, and protect them.

to 10,00
by hunte
largest n
States pa
in the hi
b
c. sc
open and

The n
excellent
fine gam
1930's, h
vide som
coveys o
waterhol
rock ridg
ing the w
hunter, a
arrived
mocked
far above
pared acc
tridge is a

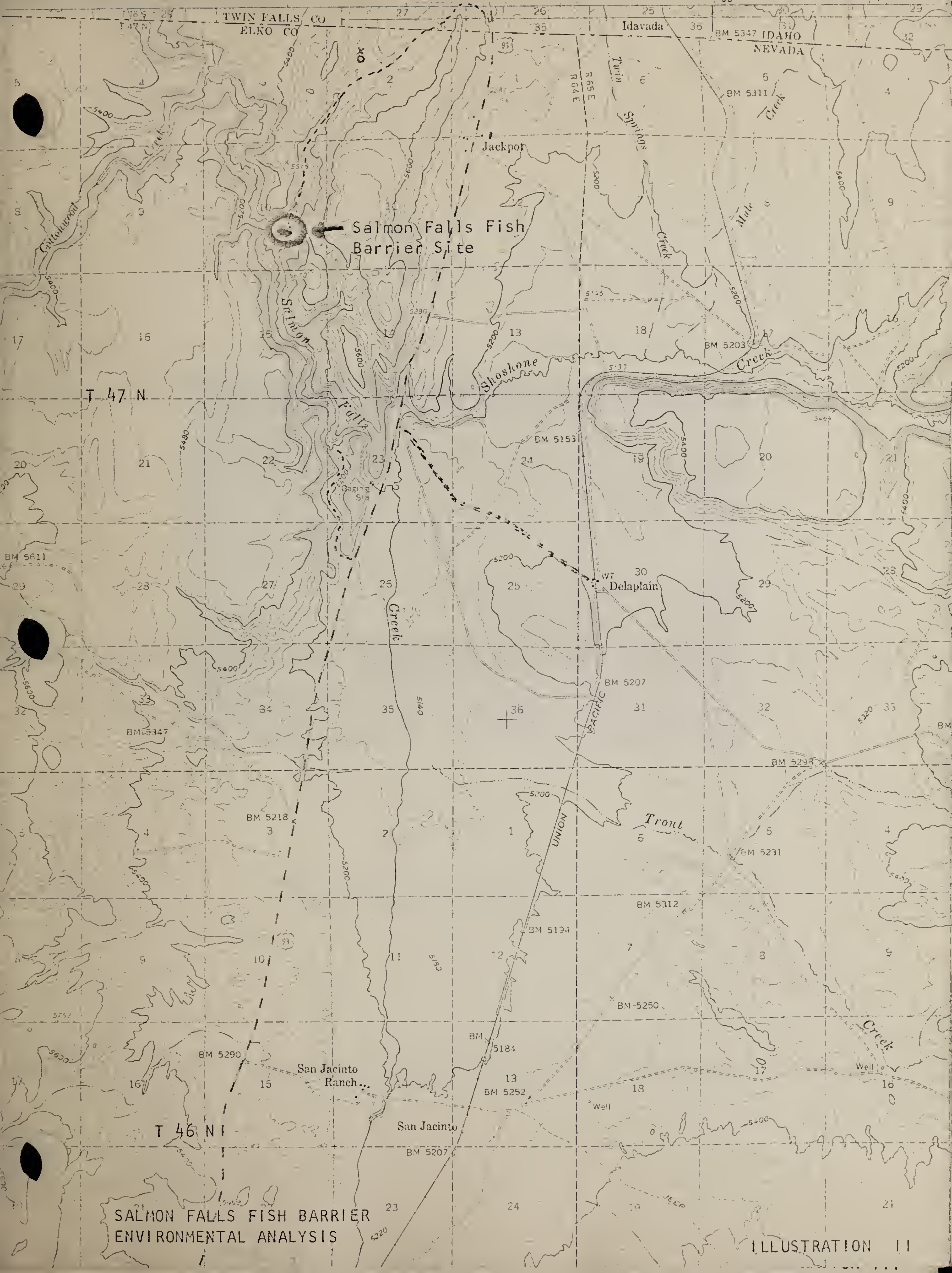
YO

p
ic th
erts, mo
tional op
gas, an
forage . .

The va
to the w
cept Te
Louisian
remain e
the publ
gon, Cali
ming, Ut

Nevad
(Alaska
adminis
(BLM) —
State. B
ducted o
mucca,
tain. Pu
Land Of
Office a
fice in R

HIS

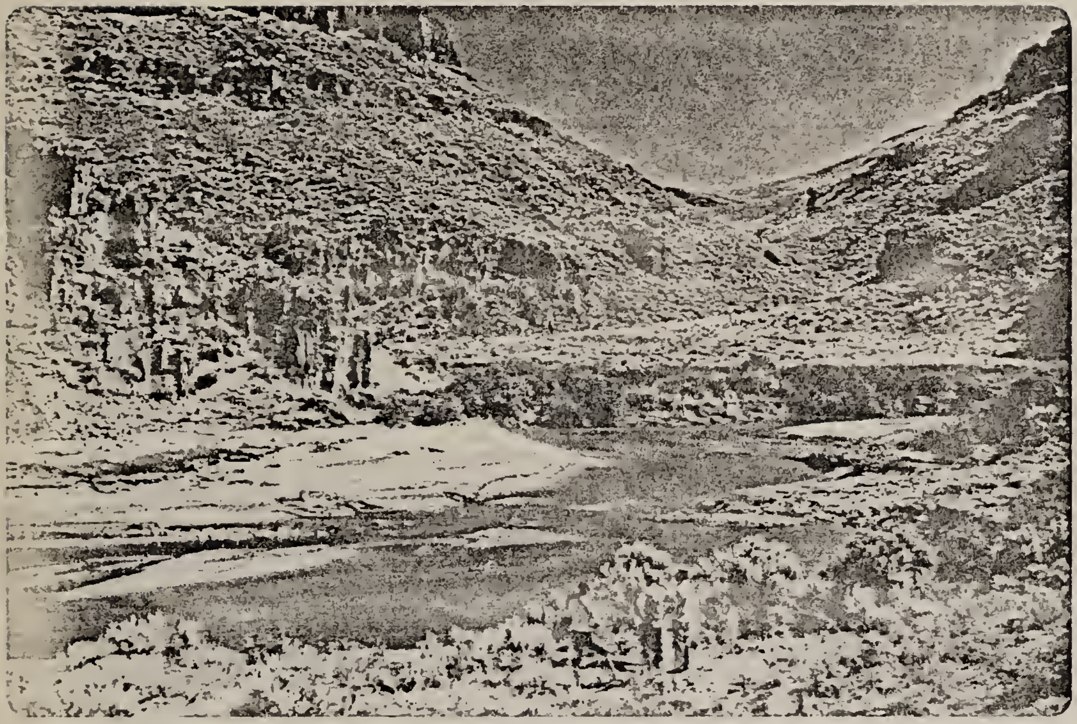


SALMON FALLS FISH BARRIER
ENVIRONMENTAL ANALYSIS

ILLUSTRATION 11

ENVIRONMENTAL ANALYSIS

SALMON FALLS FISH BARRIER



PROJECT SITE AND SURROUNDING AREA
PRIOR TO CONSTRUCTION ACTIVITY

ENVIRONMENTAL ANALYSIS

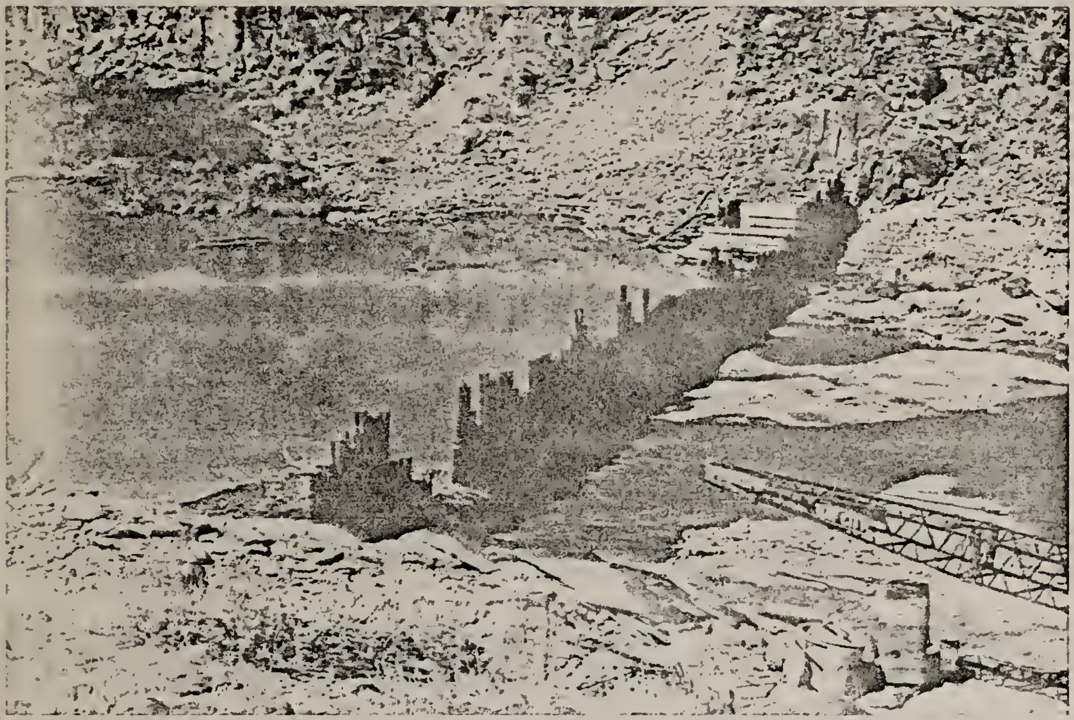
SALMON FALLS FISH BARRIER

PROJECT SITE AND SURROUNDING AREA
DURING CONSTRUCTION

ILLUSTRATION IV

ENVIRONMENTAL ANALYSIS

SALMON FALLS FISH BARRIER



PROJECT STRUCTURE
DURING CONSTRUCTION

ILLUSTRATION V