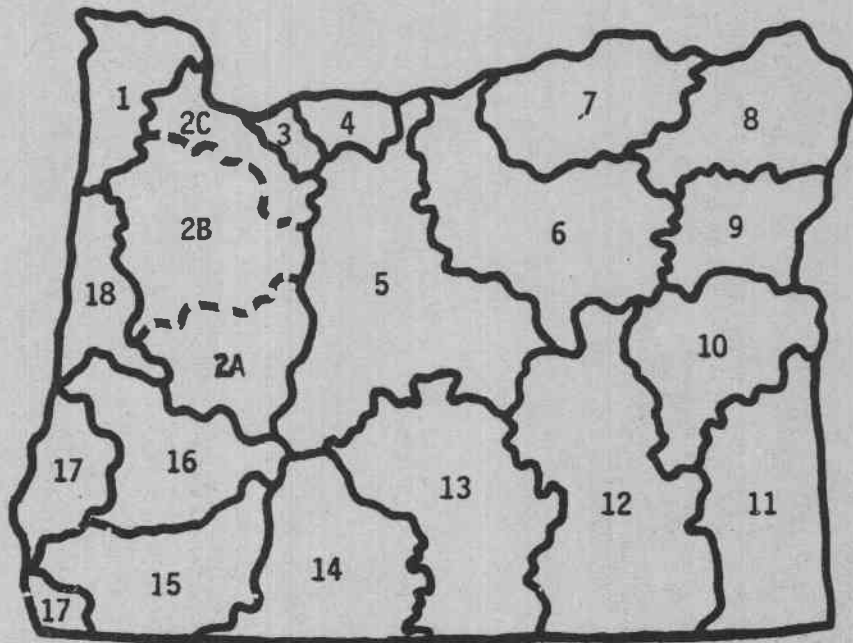


A RESOURCE SURVEY OF RIVER ENERGY
AND LOW-HEAD HYDROELECTRIC POWER POTENTIAL
IN OREGON

APPENDIX 13: GOOSE & SUMMER LAKES BASIN



WATER RESOURCES RESEARCH INSTITUTE
Oregon State University
Corvallis, Oregon 97331

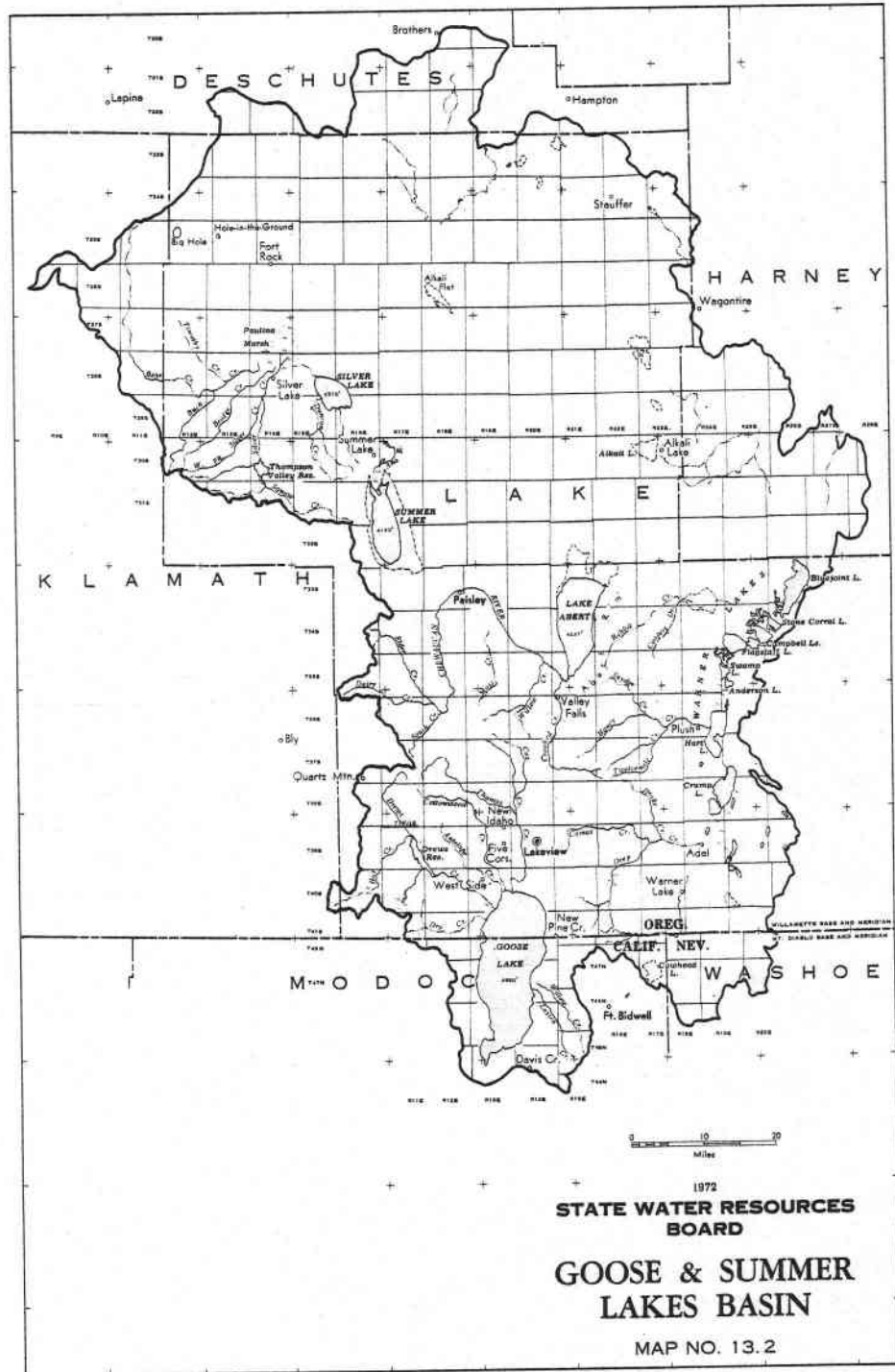
INDEX TO APPENDIX 13, GOOSE & SUMMER LAKES BASIN

Drainage Basin Map 13-ii

Reach Hydro Potential Characteristics Sheets

 Chewaucan River 13-1 to 13-5

Reach Feasibility Analysis Sheets 13-6



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-000-013-000-000-R0001

I. LOCATION

A. State	Oregon
B. County	Lake
C. Township, Range	Sec. 21, T35S, R21E
D. Latitude, Longitude	42° 31' N, 120° 15' W
E. Stream Name	Chewaucan River
F. Major Basin Name	Goose-Summer Lake
G. River Mile	0.0 to 3.8

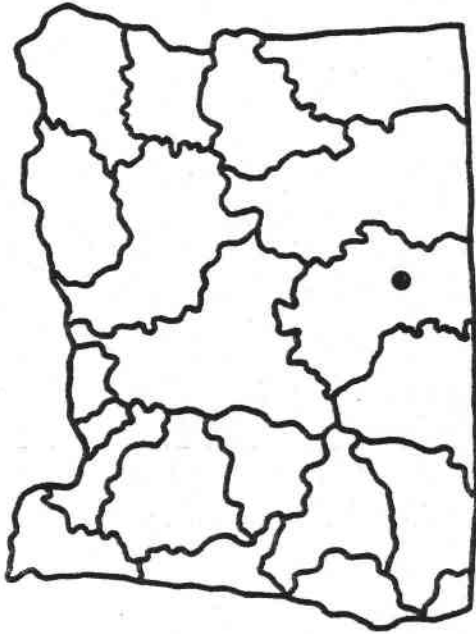
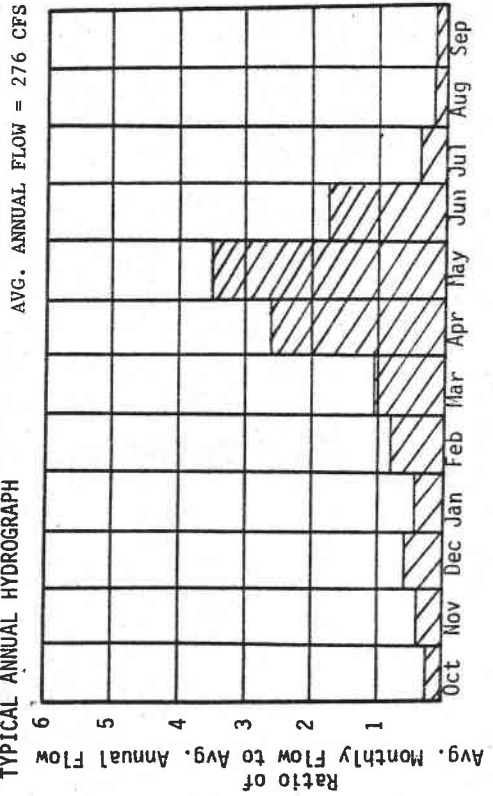
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	4275	Ft. MSL
B. Downstream Elevation of Reach	4255	Ft. MSL
C. Total Available Head in Reach	20	Ft.
D. Average Slope in Reach	5.3	Ft./Mi.
E. Drainage Area above Reach Mouth	598	Sq. Mi.
F. Inflow Classification	Natural	

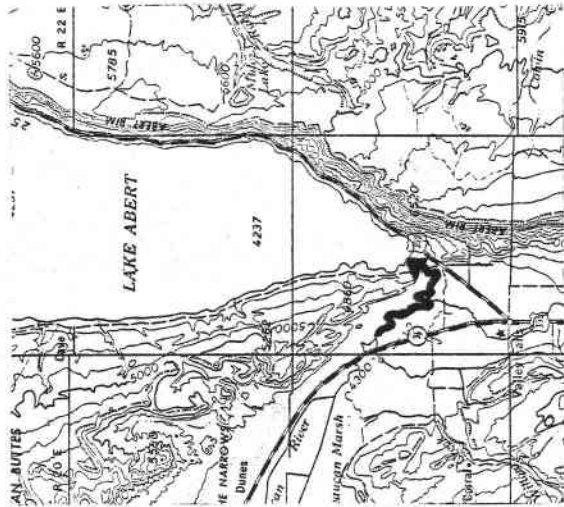
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I I	I THEORETICAL I PLANT SIZE I MW I I	I ANNUAL ENERGY I AVAILABLE I GWH I I	I PLANT I FACTOR I I
I 95 I	I 38.0 I	I .06 I	I .56 I	I 1.000 I
I 80 I	I 58.9 I	I .10 I	I .84 I	I .956 I
I 50 I	I 108.2 I	I .18 I	I 1.31 I	I .816 I
I 30 I	I 228.1 I	I .39 I	I 2.02 I	I .598 I
I 10 I	I 778.9 I	I 1.32 I	I 3.66 I	I .316 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: KLAMATH FALLS



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-000-013-000-000-R0002

I. LOCATION

A. State	Oregon
B. County	Lake
C. Township, Range	Sec. 18, T35S, R21E
D. Latitude, Longitude	42°33'N, 120°16'W
E. Stream Name	Chewaucan River
F. Major Basin Name	Goose-Summer Lake
G. River Mile	3.8 to 10.0

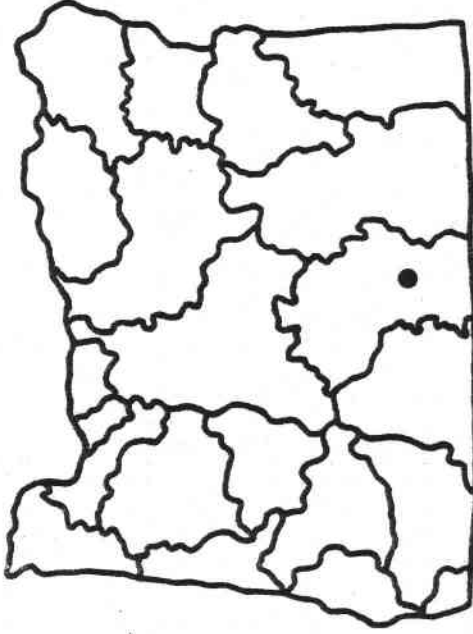
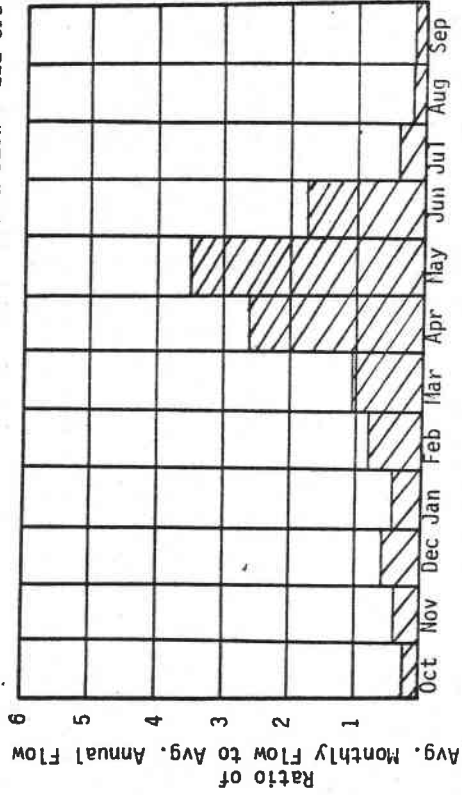
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	4289	Ft. MSL
B. Downstream Elevation of Reach	4275	Ft. MSL
C. Total Available Head in Reach	14	Ft.
D. Average Slope in Reach	2.3	Ft./Mi.
E. Drainage Area above Reach Mouth	503	Sq. Mi.
F. Inflow Classification	Natural	

III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

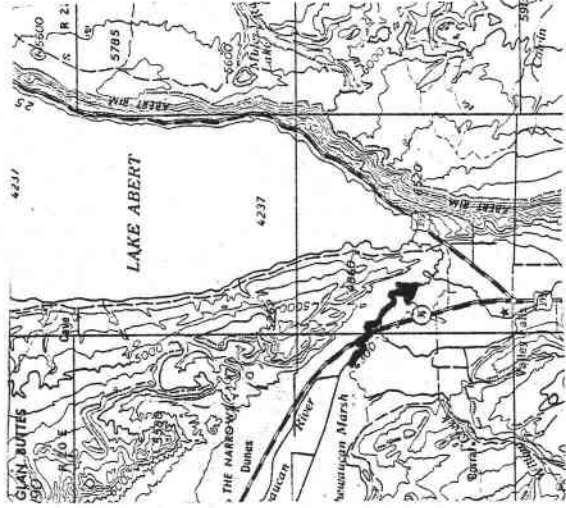
I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 30.6 I	I .04 I	I .32 I	I 1.000 I
I 80 I	I 47.4 I	I .06 I	I .47 I	I .956 I
I 50 I	I 87.0 I	I .10 I	I .74 I	I .816 I
I 30 I	I 183.3 I	I .22 I	I 1.14 I	I .598 I
I 10 I	I 626.2 I	I .74 I	I 2.06 I	I .316 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE

MAP NAME: KLAMATH FALLS



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-000-013-000-000-R0003

I. LOCATION

A. State	Oregon
B. County	Lake
C. Township, Range	Sec. 33, T34S, R20E
D. Latitude, Longitude	42°35'N, 120°22'W
E. Stream Name	Chewaucan River
F. Major Basin Name	Goose-Summer Lake
G. River Mile	10.0 to 17.0

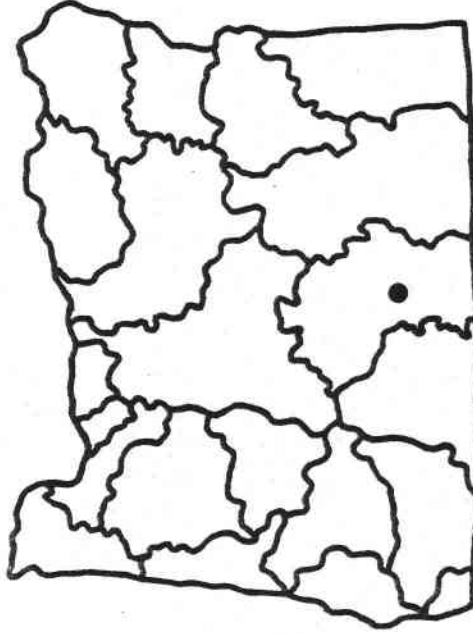
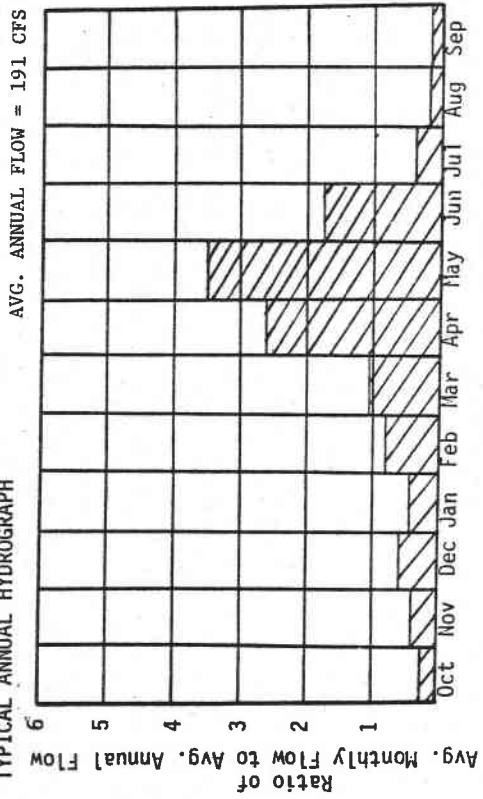
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	4300	Ft. MSL
B. Downstream Elevation of Reach	4289	Ft. MSL
C. Total Available Head in Reach	11	Ft.
D. Average Slope in Reach	1.6	Ft./Mi.
E. Drainage Area above Reach Mouth	433	Sq. Mi.
F. Inflow Classification	Natural	

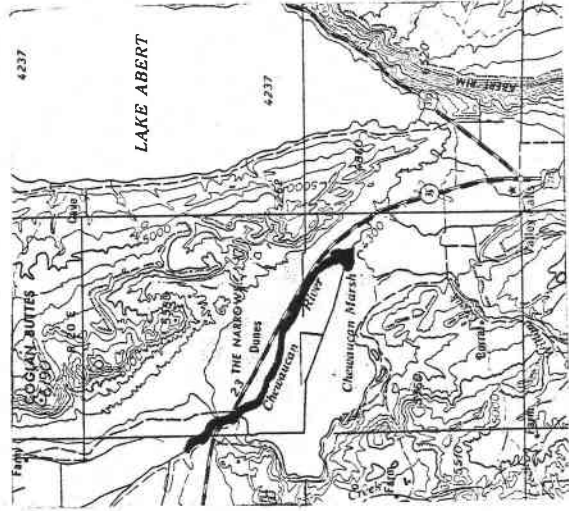
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 26.3 I	I .02 I	I .22 I	I 1.000 I
I 80 I	I 40.8 I	I .04 I	I .32 I	I .956 I
I 50 I	I 75.0 I	I .07 I	I .50 I	I .816 I
I 30 I	I 158.0 I	I .15 I	I .77 I	I .598 I
I 10 I	I 539.6 I	I .50 I	I 1.39 I	I .316 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: KLAMATH FALLS



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-000-013-000-000-R0004

I. LOCATION

A. State	Oregon
B. County	Lake
C. Township, Range	Sec. 27, T33S, R19E
D. Latitude, Longitude	42°42'N, 120°28'W
E. Stream Name	Chewaucan
F. Major Basin Name	Goose-Summer Lake
G. River Mile	17.0 to 28.0

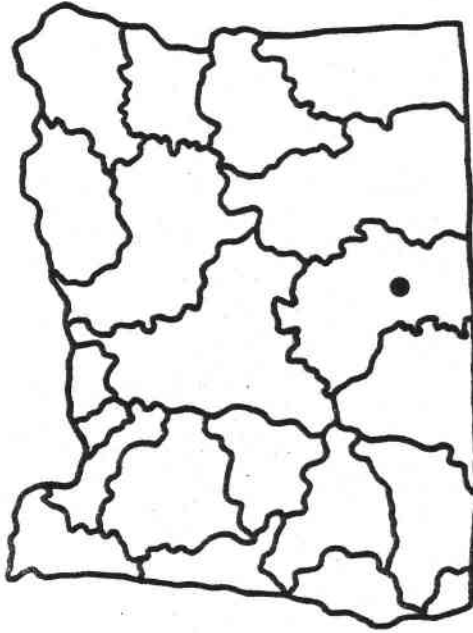
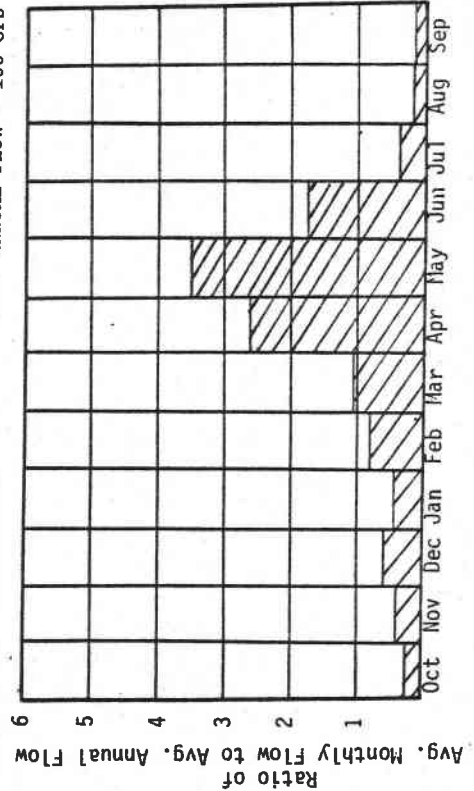
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	4420	Ft. MSL
B. Downstream Elevation of Reach	4300	Ft. MSL
C. Total Available Head in Reach	120	Ft.
D. Average Slope in Reach	10.9	Ft./Mi.
E. Drainage Area above Reach Mouth	390	Sq. Mi.
F. Inflow Classification	Natural	

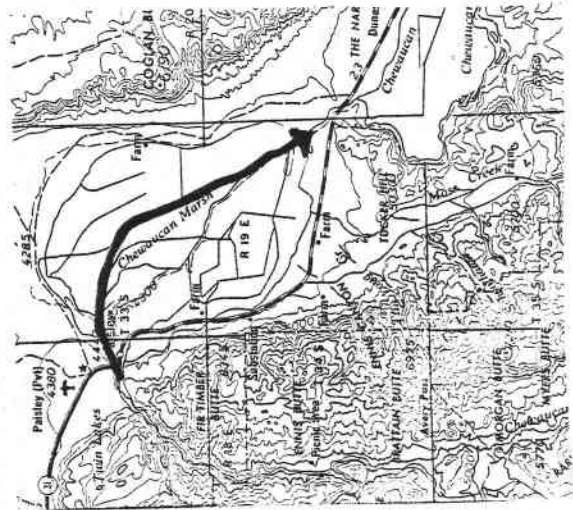
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 22.9 I	I .23 I	I 2.04 I	I 1.000 I
I 80 I	I 35.5 I	I .36 I	I 3.02 I	I .956 I
I 50 I	I 65.2 I	I .66 I	I 4.74 I	I .816 I
I 30 I	I 137.4 I	I 1.40 I	I 7.31 I	I .598 I
I 10 I	I 469.2 I	I 4.77 I	I 13.23 I	I .316 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: KLAMATH FALLS



REACH HYDRO POTENTIAL CHARACTERISTICS

REACH # 02-000-013-000-000-R0005

I. LOCATION

A. State	Oregon
B. County	Lake
C. Township, Range	Sec. 22, T33S, R18E
D. Latitude, Longitude	42°43'N, 120°33'W
E. Stream Name	Chewaucan River
F. Major Basin Name	Goose-Summer Lake
G. River Mile	28.0 to H.W.

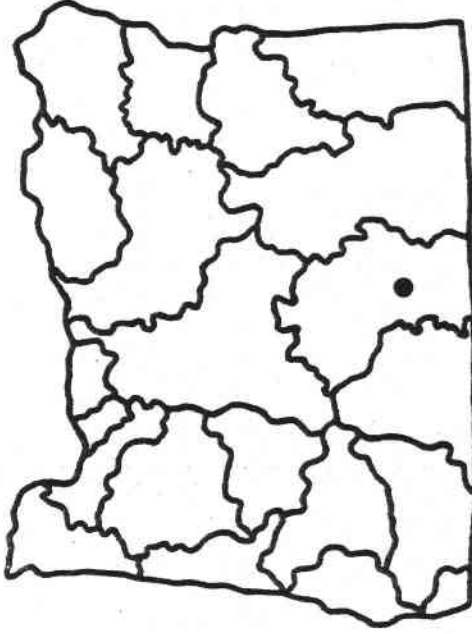
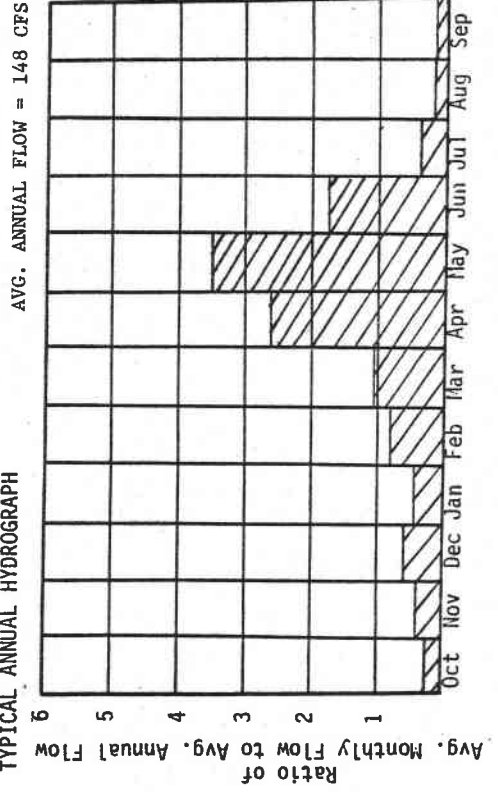
II. HYDROLOGIC AND HYDRAULIC CHARACTERISTICS

A. Upstream Elevation of Reach	---	Ft. MSL
B. Downstream Elevation of Reach	---	Ft. MSL
C. Total Available Head in Reach	66	Ft.
D. Average Slope in Reach	---	Ft./Mi.
E. Drainage Area above Reach Mouth	280	Sq. Mi.
F. Inflow Classification	Natural	

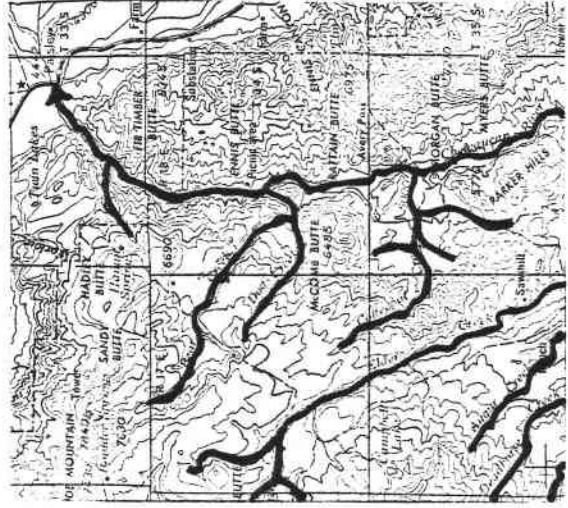
III. REACH FLOW DURATION AND THEORETICAL POTENTIAL ENERGY CHARACTERISTICS

I EXCEEDANCE I PERCENTAGE I I	I DISCHARGE I CFS I	I THEORETICAL I PLANT SIZE I MW I	I ANNUAL ENERGY I AVAILABLE I GWH I	I PLANT I FACTOR I
I 95 I	I 20.4 I	I .11 I	I 1.00 I	I 1.000 I
I 80 I	I 31.6 I	I .18 I	I 1.48 I	I .956 I
I 50 I	I 58.1 I	I .33 I	I 2.32 I	I .816 I
I 30 I	I 122.4 I	I .68 I	I 3.59 I	I .598 I
I 10 I	I 418.2 I	I 2.34 I	I 6.48 I	I .316 I

IV. TYPICAL ANNUAL HYDROGRAPH



U.S.G.S. TOPO. SERIES
1:250,000 SCALE
MAP NAME: KLAMATH FALLS



FEASIBILITY, TRANSMISSION AND LOAD RESTRAINTS

REACH IDENTIFICATION NUMBER	FEASIBILITY RESTRAINT				TRANSMISSION AND LOAD CONSIDERATIONS			
	LAND USE RESTRICTIONS	UTILITY DISPLACEMENT	BUILDING DISPLACEMENT	SPECIAL FISH PROBLEMS	DISTANCE TO NEAREST LINE Miles	LINE CAPACITY KVA	LOCAL MARKET	DISTANCE TO CITY > 1000 Miles
02-000-013-000-								
000-R0001	-	-	-	-	1.2	69-SV	-	23.0
000-R0002	-	X	-	-	0.8	69-SV	-	24.5
000-R0003	-	X	-	-	1.2	69-SV	-	27.5
000-R0004	-	-	-	-	4.0	69-SV	-	35.0
000-R0005	X	-	-	-	1.0	69-SV	-	36.0