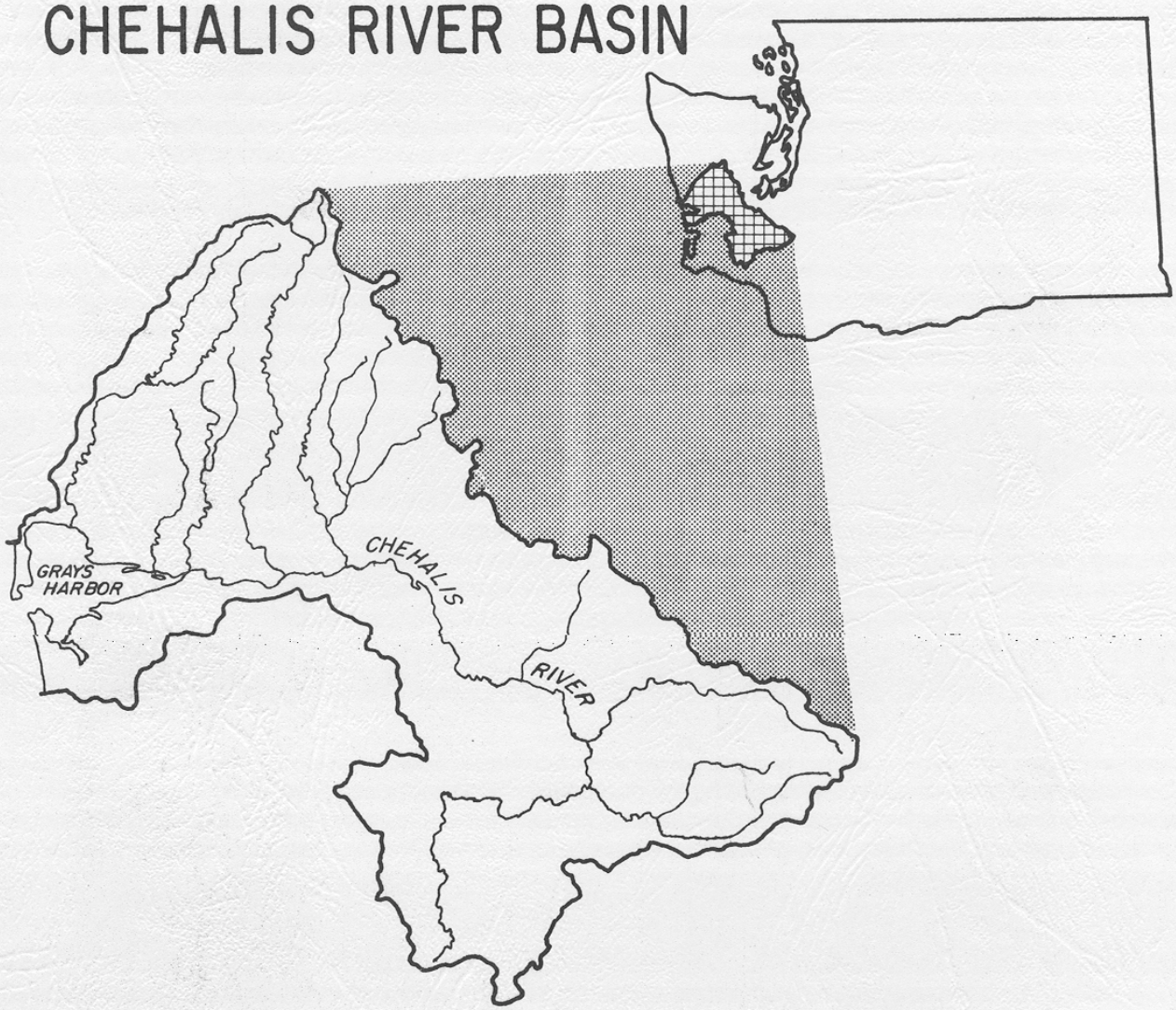
State of Washington
Department of Ecology

WATER RESOURCES MANAGEMENT PROGRAM

WASHINGTON STATE WATER PROGRAM

BASIN PROGRAM SERIES 2

CHEHALIS RIVER BASIN



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BASIN PROGRAM SERIES, NO. 2

WATER RESOURCES MANAGEMENT PROGRAM
CHEHALIS RIVER BASIN

(WATER RESOURCES INVENTORY AREAS 22 & 23)

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DEPARTMENT OF ECOLOGY

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PREFACE

This November, 1976 revised document supercedes the November, 1975 Revised Review Draft. All revisions are additions to and corrections of information in the earlier draft document. This completed document includes the addition of the regulation and revisions mainly in Tables 2, 3, 4, and the Appendix.

INTRODUCTION

The Water Resources Act of 1971 (Chapter 90.54 RCW) directs the Department of Ecology to develop and implement a comprehensive state water resources program to insure that the waters of the state are utilized for the best interests of the people of the state.

This document contains the Department's proposed water resource management program and Departmental findings for the Chehalis River Basin as to:

1. Current use of the water resource (instream and consumptive use);

2. Closed streams;

3. Water available for future use;

4. Existing and potential storage sites.

Where significant conflicts and competition in water usage are found, this management program defines the Departmental position. This document will be used by the Department to guide its operations and administration of water rights. Also, this document will represent Departmental policy with regard to water use and allocation for the Chehalis River Basin.

SUMMARY

The Chehalis Basin lies between the Deschutes River to the east, the Cowlitz River to the south and the Olympic Mountains on the north. Average annual discharge from the basin is 8,120,000 acre-feet (11,208 cfs). Water is diverted for use in industry, for domestic use, agriculture (including irrigation), and municipal water supply. Many of the streams support runs of salmon and ocean-going trout. The Chehalis River is the basin's largest river. It empties into Grays Harbor.

About 93,600 people live in the 2,680 square mile basin. The main land use within the basin is forestry. Forests occupy 84 percent of the total area. Agriculture accounts for 7 percent of the total area, urban - 2 percent, nonagricultural rural land - 0.5 percent, water - 2 percent of the surface and other uses amount to 4 percent of the total surface area. The economic base closely reflects the land use pattern of the basin with forestry first, followed by agriculture and recreation.

Figure 1 shows the main rivers and towns in the Chehalis Basin. It also shows the relationship of the basin to Washington State. Table 1 shows some flow comparisons for the Chehalis River.

The management policy results from an assessment of land capability and river flow characteristics within the Chehalis Basin. Demands on the flow were evaluated as to instream and out-of-bank requirements.

Once water use needs were established several recommendations were made. Priorities for water use were set as follows:

1. Existing valid water rights will be protected and will not be adversely affected by the management program.

2. Base flows will be established to preserve instream values. Included are protection of fish and wildlife, aesthetic and environmental values.

3. Where surface water is the only practical source of supply, base flows and stream closure will not apply to domestic and stock uses.

4. Any remaining unappropriated water may be appropriated to consumptive and nonconsumptive uses. All beneficial uses not specified in the preceding priorities are given fourth priority.

The status of existing administratively closed streams is confirmed. Additionally, findings showed that the South Fork Chehalis should be closed during the months of July, August, and September. Salzer Creek should be closed year round. Implementation of this program is through adoption of rules and regulations.

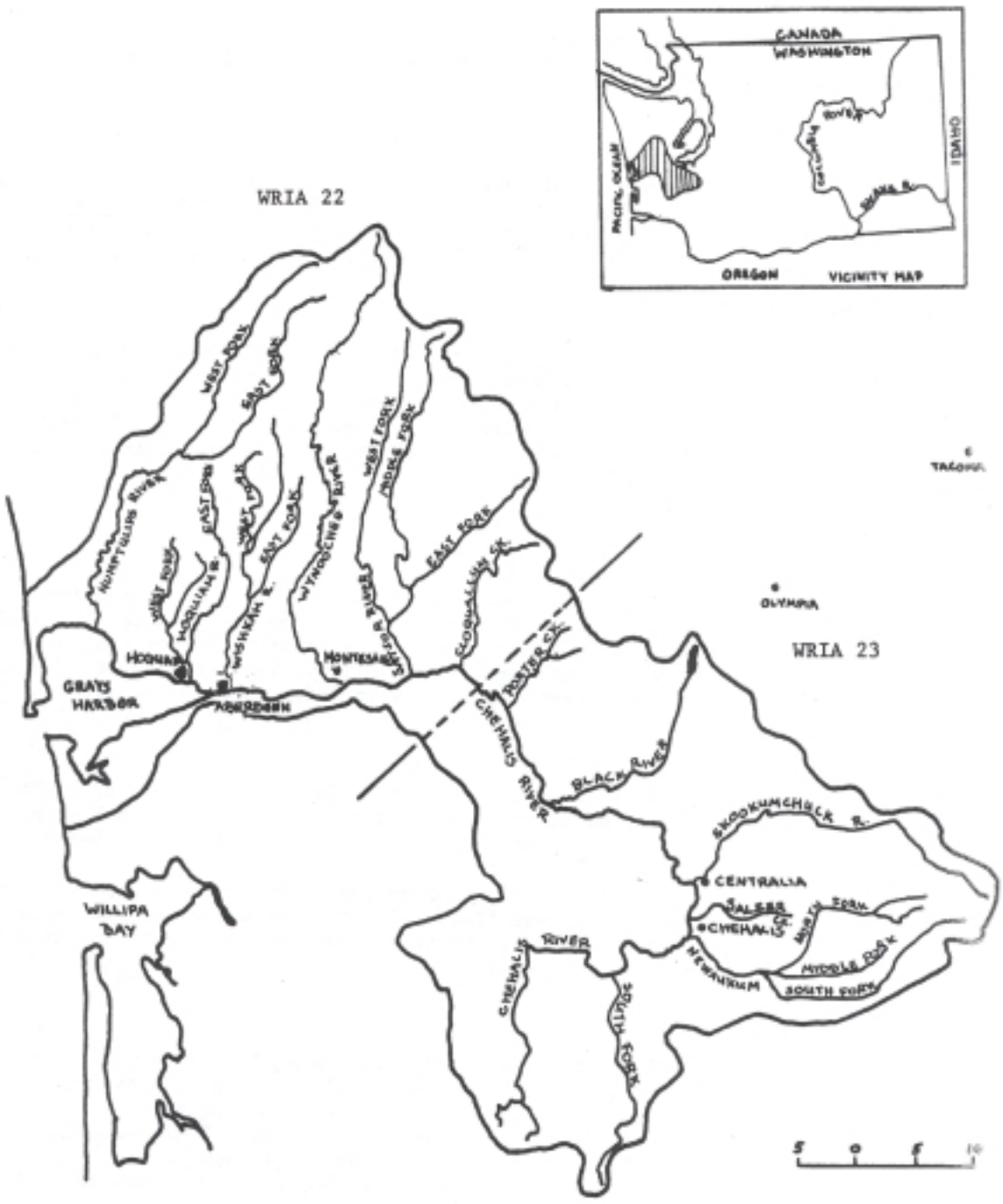


Figure 1

CHEHALIS BASIN

Flow Comparison for Chehalis River (Mainstem) Table 1

	RIVER MILE	DRAINAGE AREA (sq. mi)	MEAN MONTHLY FLOW		BASE FLOW		PROPOSED FLOW AVAILABLE FOR CONSUMPTIVE USE	
			July	Aug	July	Aug	July	Aug
Chehalis River at Grand Mound Gage 0275	59.9	895	383	252	275	165	18	15
Chehalis River at Porter Gage 0310	33.3	1,294	642	448	460	260	63	99
Chehalis below Satsop	20	1,760	1,160	870	860	500	165	227

WATER RESOURCES MANAGEMENT PROGRAM

The primary goal of the Chehalis River Basin Water Resources Management Program is to protect and fully utilize the basin surface and groundwater resources for the greatest benefit to the people of the State of Washington. Efficient management and enforcement of the water use policies are essential for accomplishment of this primary goal in harmony with the preservation of the natural aesthetic assets in this basin.

This management program section establishes base flows at twenty-nine (29) control stations along the Chehalis River and tributaries. These are the levels of flow necessary to provide for preservation of wildlife, fish, scenic, aesthetic, and other environmental values of the perennial streams and rivers, and flow levels to which all future water rights will be subject.

Where there are surface waters available in excess of the base flows and existing water rights, priorities among different uses are established, and subsequently the amounts of water for future appropriation for the beneficial uses are specified. This management policy also declares the closures from future surface water diversion, except domestic and livestock uses, on certain streams where and when there is not sufficient water available.

All future appropriation of surface waters shall be issued subject to provisions of this Chehalis River Basin Water Resources Management Program or future revisions thereof. The existing valid water rights shall not be adversely affected by these management policies.

I. Management of Surface Waters

A. Declaration of Beneficial Use and Use-Priority

The State Water Resources Act of 1971 declares the following uses of water to be beneficial: domestic, stock watering, industrial, commercial, agricultural, irrigation, hydroelectric power production, mining, fish and wildlife maintenance and enhancement, recreational, and thermal power production purposes, and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state (RCW 90.54.020(l).

Among these beneficial uses, the public inputs and current departmental investigations have led to the recommendation that actual allocation of water be limited only to certain use categories. Because of the limitation of available surface waters it became inevitable to establish priorities among the many beneficial uses and to allocate resources accordingly.

Management of the surface water resources of the Chehalis River will be guided by the following beneficial use priorities:

Priority I

This management policy will not affect the existing water rights. Existing water rights have highest priority in use. Priority has been established by the date of filing of the original application with the department.

Priority II

The second priority use category is the flow necessary to maintain base flows for preservation of wildlife, fish, scenic, aesthetic, and other environmental values. Consistent with the fundamental policy of this state, water rights issued after the effective date of this policy shall not impair maintenance of base flows in the stream.

Priority III

Nonconsumptive use and domestic use, including irrigation of lawn and noncommercial garden not to exceed one-half acre, and livestock use, excluding feedlot operation, are placed in the third-priority. Therefore, water rights for domestic and stock watering use, issued after adoption of this policy, will be subject to base flows and prior rights.

Irrigation of lawn and garden under this water right may not be allowed when the natural flow falls below the level necessary to maintain base flow requirements.

Where there is no practical alternative source of water supply, base flows and stream closures may not apply to diversions for household use and stock watering excluding feedlot operation.

Priority IV

The remaining surface waters will be appropriated to other consumptive uses. All beneficial uses which are not specified in the preceding priorities are grouped and given fourth priority. When local land use policies are established and need arises, further priorities or withdrawals may be made as appropriate.

In stream reaches where investigation shows no remaining surface waters for appropriation, streams will be closed to future consumptive appropriation. When unappropriated public waters remain, consumptive and nonconsumptive water rights will be issued.

B. Establishment of Base Flows

It is a fundamental policy of this state that "perennial rivers and streams of this state be retained with base flows necessary to provide for preservation of wildlife, fish, scenic, aesthetic, and other environmental values, and navigational values." Further, lakes and ponds shall be retained substantially in their natural condition.

It is also desirable from the public point of view that flow levels be established and enforced to protect the aesthetic environment from future water use activities. In consonance with the fundamental policy of the state and the public desire, base flows for the Chehalis, Hoquiam, Humptulips, Johns, and Elk rivers and their tributaries are hereby established. The base flows shall be controlled at specific designated control stations and shall extend to the influence of mean annual high tide at low base flow levels. For the Chehalis River, this specific point of influence or downstream point of applicability of the base flow is River Mile 20.5 (U.S. Army Corps designation which is located in immediate proximity to confluence with Satsop River.)

Water right permits and certificates issued in the future will not allow appropriation of surface water from the Chehalis River and its tributaries below the base flow levels as established through this policy. Existing water rights are not affected by base flow restrictions.

The stream flow levels will be monitored by the department. When and where the flows fall below the base flow, future water right holders will be notified and diversion will be regulated progressively in order of priority and filing date until established base flow is resumed.

The base flows for the first and fifteenth day of the month and control stations established through this management program are given in Table 2. Base flows for any specific day not identified in the Table can be obtained from base flow hydrographs included in Appendix 1 to the Chehalis River Basin Water Resources Management Program.

C. Closure of Streams to Further Consumptive Appropriation

As a result of investigation on water availability the tributary streams specified in Table 1 will be closed to further consumptive appropriation during the period specified. The remaining public waters in these streams are necessary to maintain in-stream values, and for domestic and normal stock watering use, excluding feedlot operation.

Withdrawals of water which would conflict with the closures in this management policy shall be authorized only in those situations where it is clear that overriding consideration of the public interest will be served as per paragraph (3)(a) of Chapter 90.54.020 RCW.

D. Allocation of Remaining Public Surface Waters

The remaining public waters will be further appropriated for consumptive and nonconsumptive uses to the amount as specified in Table 4 for the month and reach.

II. Administrative Procedures

A. Regulation of Base Flow

All future consumptive water rights will be subject to base flows at designated control stations. Therefore, all these rights will carry the proviso that the holders will stop diverting water when the flows fall below the level necessary to meet the base flow.

Future domestic and stock watering rights are also subject to base flow and prior rights unless there is no other source of water supply.

B. Issuance of Future Water Rights

A system to keep track of water right issuance is an essential part of this management program.

All consumptive water rights will be deducted from the amount specified for each month in order to keep track of the remaining water available for further appropriation.

If field investigation determines that a well or spring of interest is in hydraulic continuity with the stream system, the consumptive water rights will also be subjected to base flows at the designated control station.

FINDINGS

I. Basin Description

The Chehalis River Basin lies between the Deschutes and Cowlitz River Basins on the east and south, respectively, and the Olympic Range on the north. The basin includes parts of Lewis, Thurston, Cowlitz, Pacific, Grays Harbor, and Mason Counties and falls within Water Resource Inventory Areas (WRIA) 22 and 23.

Total drainage area of the basin is 2,680 square miles of which approximately 84 percent is forest lands. Approximately 187 square miles (120,000 acres) are in agriculture.

Figure 3 shows land use within the Chehalis Basin.

Four major population centers, Chehalis, Centralia, Aberdeen, and Hoquiam, depend for a portion of their municipal and industrial supplies on surface waters of the basin. Population of the basin, according to the 1970 census, is 93,600 and by year 2,000 the population is projected to reach 120,000.

The following findings have resulted from an investigation of all the available information, and from an assessment of the land capability and river flow characteristics within the basin.

II. Basin-Wide Findings

A. The Chehalis River system is largely rain-fed with precipitation levels which range from 60 inches in the eastern part to over 90 inches along the coast. About 85 percent of this annual precipitation occurs during the period from October-April. By contrast, the greatest demand for water throughout the Chehalis system occurs during July and August. This seasonal distribution problem causes water shortage in some of the basin streams during summer low flow periods.

B. There is sufficient water supply on an annual yield basis to satisfy existing and future needs, provided seasonal distribution problems are resolved. Average annual discharge of the Chehalis River into Grays Harbor is approximately 6,089,000 acre-feet.

C. Water use in the Chehalis Basin was approximately 125,000 acre-feet in 1970; of this total, about 25,000 acre-feet were actually depleted from the basin supply. Approximately 66 percent of the water use in the basin is by industry, 23 percent by agriculture, and 11 percent by municipalities.

D. Intensive agriculture and irrigation occurs mostly in the low-lying valleys along the Chehalis River and its tributaries. Farms in the basin are following national trends of increased acreage and reduced numbers. Primary use of agricultural land

is for crops. In order of importance, those crops are: hay, small grains, vegetables, and berries.

E. Irrigated acreages within the basin have been fairly stable and new irrigation development is not expected to increase substantially over the next few years unless cropping patterns change or commodity prices increase substantially.

F. Current records indicate that nearly 22,000 acres could be irrigated under existing surface water rights and 23,000 acres could be irrigated under existing ground-water rights. However, the 1969 agriculture census determined that 13,600 acres were actually irrigated from both sources, and is comparable to the 18,400 irrigated acres determined by USGS for 1970.

Figure 4 shows irrigated acres from surface waters.

G. Surface and ground water are both used for municipal supply. The two major population centers, Hoquiam-Aberdeen-Cosmopolis and Centralia-Chehalis, depend primarily on surface water while the smaller communities depend on ground water.

H. Two small communities, Oakville and Bucoda, have experienced some contamination of their ground-water supply. This contamination was traced to septic tanks located in proximity to the wells. Wells in Thurston and Lewis Counties contain water of calcium-magnesium bicarbonate type.

I. Additional studies are needed to determine the maximum benefits that can be obtained through conjunctive use of ground and surface water. Water levels in wells that penetrate gravels underlying the Chehalis River respond fairly rapidly to changes in the river levels. Ground water recharge during winter months is equivalent to 30 inches of precipitation and would appear adequate to meet maximum summer demands.

Most of the wells in the Chehalis Basin are of the relatively shallow domestic type. The greatest quantity of ground water is used for irrigation and is pumped from wells at rates of 100 to 1,000 gpm, with an average yield of less than 200 gpm.

J. Land within the basin is primarily in forest cover with interspersed agricultural and residential areas. Forest lands, which constitute 77 percent of the Upper Chehalis Basin and 91 percent of the lower basin, are located primarily on the upland areas with scattered amounts on poorly drained bottom lands. Most forested acres are corporation-owned with the remainder being privately or government-owned (Capital State Forest and Snoqualmie National Forest).

The capacity of the existing diversion tunnel is approximately 125 cfs. Doubling of the tunnel in capacity was intended to follow completion of the Wynoochee Reservoir; to date this has not been done.

L. Thermo-electric power is being produced from coal mined in the basin. This plant, owned by the Pacific Power and Light Company and located near Centralia, has a surface water permit for 80 cfs on the Skookumchuck River. The company constructed a storage reservoir on the upper reaches of the river; however, their diversion facility only has a capacity of 50 cfs.

M. A thermonuclear power plant is planned by the Washington* Public Power Supply System for a location near the mouth of the Satsop River. The proposed source of water supply is from shallow wells approximately three miles downstream from the mouth of the Satsop River. As much as 80 cfs may be required.

N. The existing anadromous fish resource of the basin is of national significance to both sport and commercial fishing. These resources are also important economic factors to the Chehalis Basin.

O. Headwaters, tributaries and main stem of all major streams in the basin have a potential for supporting more wildlife and fish populations, according to the Department of Game.

P. Maintenance of adequate perennial stream flows and water quality is essential to the preservation of the anadromous resource.

Q. Instream uses of water are equally as important as out-of-bank uses, and for this reason it is essential to the public that base flows be established and maintained.

R. Several streams have been administratively closed and other streams have had low flows administratively imposed.

Figure 6 shows existing stream closures. Table 1 lists existing stream closures.

S. Flood damages occur along much of the valley bottom lands, especially along the Chehalis River from near Chehalis to Porter. The following flood damage information has been supplied by the U.S. Army Corps of Engineers. The information is based on 1975 prices and conditions.

* Note: See Washington State Energy Facility Site Evaluation Council's Certification Order No. 502, dated June 21, 1976.

Area	Average Annual Flood Damages
Chehalis (below Satsop)	$579,000
Wynoochee	12,000 1/
Satsop	81,000
Newaukum	88,000
Skookumchuck	50,000
Chehalis (above Satsop)	860,000
Total	$1,670,000

1/ With regulation by Wynoochee Dam.

T. Solutions to some flood damage problems in the basin are presently being sought by a newly formed "Chehalis River Basin Task Force." Members of this group include county and state officials from all the five counties in the basin. The emphasis of this body will initially be directed on solutions of bank erosion problems.

U. Approximately 52 potential reservoir sites have been identified in the Chehalis Basin. Information, such as name, location, height of dam, storage capacity, and surface area, has been approximated from topographic maps. Studies have been made of some sites by the Bureau of Reclamation and Army Corps of Engineers. In some instances the site might not be feasible because of urban development or amount of cropland that would be displaced.

Table 5 lists potential reservoir sites by watershed for the Chehalis Basin.

TABLE 2

STREAM	DATE OF CLOSURE	PERIOD OF CLOSURE
Beaver Creek, Tributary to S. FK. Newaukum River	12-5-52	1 May – 31 Oct.
Beaver Creek, Tributary to Black River	10-28-52	" "
Bunker Creek	1-17-50	" "
Dempsey Creek	11-15-74	" "
Dillenbaugh Creek	8-21-72	" "
Hanaford Creek	5-7-52	" "
Hope Creek & Garrard Creek	8-28-73	" "
Kearney Creek	10-27-52	" "
Lincoln Creek	11-5-48	" "
Middle Fork, Newaukum R.	4-7-50	" "
Mill Creek	3-21-52	" "
Mox Chehalis	4-25-57	" "
Salmon Creek	12-18-56	" "
Rock Creek	4-11-73	" "
Scatter Creek	7-20-50	" "
Stearns Creek	4-28-53	" "
Wildcat Creek	10-28-52	" "
Williams Creek	5-6-52	" "
Wynoochee River	3-9-62	" "
Black River	Date of Adoption	1 July –30 Sept.
Skookumchuck River	" "	" "
S. Fk. Chehalis River	" "	" "
Salzer Creek	" "	1 June – 30 Sept.

NOTE: Effected reach is from mouth to headwaters and includes all tributaries in the contributing drainage area unless specifically excluded.

TABLE 3. AVAILABLE SURFACE WATERS FOR FUTURE APPROPRIATION
(in cubic feet per second)

Stream Name and Reach Description	Number River Mile Sec. Twp. Rge.	MAY	JUN	JUL	AUG	SEP	OCT
Chehalis R. near Elk Creek	12-0200.00 101.8 14-13-5W	132	52	(18)*	(15)*	46	271
Elk Creek mouth to headwaters	12-0205.00 2.5 18-13-5W	34	19	7	5	11	54
S. Fk. Chehalis R.	12-0216.30 0.3 24-13-4W	86	21	(Closed 7/1/-9/30)			118
Chehalis R. near Chehalis	12-0235.00 77.6 2-13-3W	275	139	(18)*	(15)*	67	453
S.F. Newaukum R.	12-0240.00 22.8 28.13-1E	59	30	10	8	24	70
N.F. Newaukum R.	12-0245.00 6.6 35-14-1W	33	9			1	21
Newaukum R. near Chehalis	12-0250.00 4.1 19-13-2W	108	80	(18)*	(15)*	37	172
Salzer Creek	12-0253.00 3.8 22-14-2W	4	(----------Closed----------)				
Skookumchuck R.	12-0264.00 6.4 12-15-2W	72	19	(Closed 7/1-9/30)			89

*Quantities in () are controlled by the findings at the Grand Mound Gage Station

TABLE 3. AVAILABLE SURFACE WATERS FOR FUTURE APPROPRIATION (Continued)
(in cubic feet per second)

Stream Name and Reach Description	Number River Mile Sec. Twp. Rge.	MAY	JUN	JUL	AUG	SEP	OCT
Chehalis River at Grand Mound	12-0275.00 59.9 22-15-3W	566	270	18	15	114	741
Black River	12-0292.00 4.1 33-16-4W	73	13	(-------Closed-------)			55
Cedar Creek	12-0305.00 1.1 14-16-5W	22	5	2	4	10	46
Chehalis River at Porter	12-0310.00 33.3 28-17-5W	725	306	63	99	219	1032
Cloquallum Creek	12-0325.00 1.9 36-18-6W	51	19	8	10	13	103
E. Fk. Satsop R.	12-0342.00 15.9 15-19-6W	53	17	9	3	14	73
Decker Cr.	12-0343.00 0.3 31-19-6W	141	62	27	19	40	204
M, Fk. Satsop R.	12-0345.00 0.4 36-19-7W	146	50	50	15	24	303
Satsop River	12-0350.00 2.3 36-18-7W	440	168	62	60	158	920

TABLE 3. AVAILABLE SURFACE WATERS FOR FUTURE APPROPRIATION (Continued)
(in cubic feet per second)

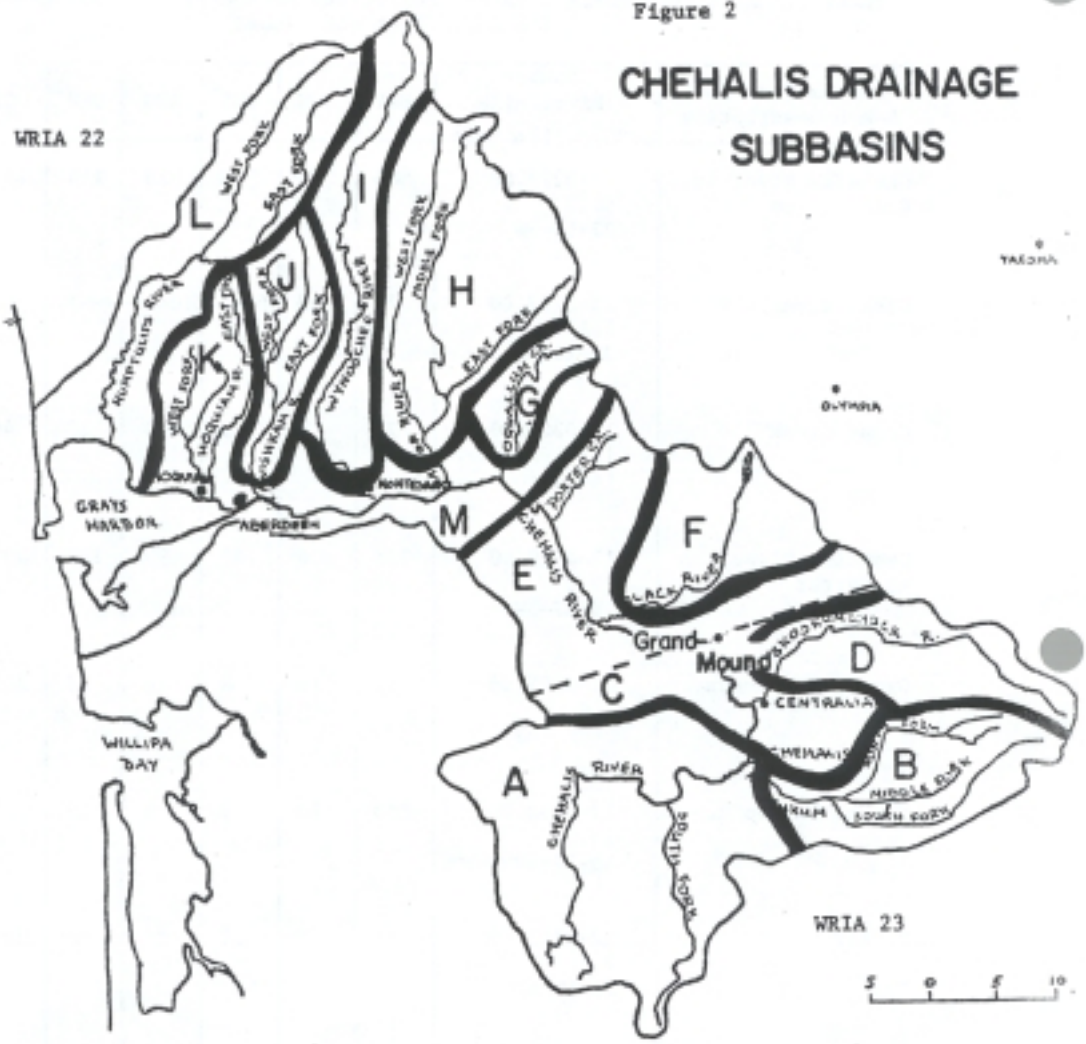
Stream Name and Reach Description	Number River Mile Sec. Twp. Rge.	MAY	JUN	JUL	AUG	SEP	OCT
Chehalis R. below Satsop R.	12-03350.02 20.0 7-17-6W	1235	537	165	227	462	2281
Wynoochee R.	12-0374.00 5.9 27-18-8W	(----------Closed----------)					
Wishkah River	12-0380.00 16.2 22-19-3W	93	86	19	3	12	267
W. Fk. Hoquiam R.	12-0385.00 9.4 14-18-10W	(----------Insufficient Data----------)					
M. Fk. Hoquiam R.	12-0386.00 1.6 4-18-10W	13	7	5	3	10	40
E. Fk. Hoquiam R.	12-0387.00 7.1 8-18-9W	9	3	2	0	9	30
Humptulips R.	12-0390.00 24.8 17-20-10W	306	127	68	62	210	886
Elks River	12-0174.00 3.0 3-16-11W	6	10	4	2	9	21
Johns River	12-0175.00 6.0 21-16-10W	30	16	8	5	12	55

TABLE 3. AVAILABLE SURFACE WATERS FOR FUTURE APPROPRIATION (Continued)
(in cubic feet per second)

Stream Name and Reach Description	Number River Mile Sec. Twp. Rge.	MAY	JUN	JUL	AUG	SEP	OCT
Newskah Cr.	12-0180.03 3.5 32-17-9W	12	6	2	1	4	21
Charley Cr.	12-0185.00 2.0 21-17-9W	5	3	2	1	3	10

Figure 2

CHEHALIS DRAINAGE SUBBASINS



A- Upper Chehalis
B- Newaukum
C- Middle Chehalis (above Grand Mound)
D- Skookumchuck
E- Middle Chehalis (below Grand Mound)
F- Black River
G- Cloquallum
H- Satsop
I - Wynoochee
J - Wishkah
K- Hoquiam
L- Humptulips
M- Lower Chehalis

TABLE 4. BASE FLOWS AND CONTROL STATIONS

CONTROL STATION INFORMATION			BASE FLOW LEVELS (in cfs)											
Stream Name and Reach Description	Number River Mile Sec. Twp. Rge.	Date	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Chehalis R. confl. w/Elk to headwaters	12-0200.00 101.8 14-13-5W	1st	260	260	260	260	195	108	62	37	31	39	88	260
Elk Creek mouth to headwaters	12-0205.00 2.5 8-13-5W	1st	100	100	100	100	76	43	25	16	14	15	31	100
		15th	100	100	100	100	57	32	19	14	4	17	56	100
S. Fk. Chehalis R.	12-0216.30 0.3 24-13-4W	1st	200	200	200	200	145	75	40	21	15	21	56	200
		15th	200	200	200	200	105	55	29	15	15	28	105	200
Chehalis R. near Chehalis	12-0235.00 77.6 2-13-3W	1st	700	700	700	700	525	300	175	98	75	92	215	700
		15th	700	700	700	700	400	230	130	75	75	115	390	700
S. Fk. Newaukum R.	12-0240.00 22.8 28-13-1E	1st	125	125	125	125	110	70	45	29	27	33	58	125
		15th	125	125	125	125	88	56	36	27	27	40	85	125
N. Fk. Newaukum R.	12-0245.00 6.6 35-14-1W	1st	62	62	62	62	47	27	126	98	7	8.4	19	62
		15th	62	62	62	62	36	21	12	7	7	10.4	34	62

TABLE 4. BASE FLOWS AND CONTROL STATIONS (Continued)

CONTROL STATION INFORMATION			BASE FLOW LEVELS (in cfs)											
Stream Name and Reach Description	Number River Mile Sec. Twp. Rge.	Date	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Newaukum R. conf. w/Chehalis R.	12-0250.00 4.1	1st	250	250	250	250	210	118	68	38	35	43	91	250
	9-13-2W	15th	250	250	250	250	160	90	5w	35	35	54	150	250
Salzer Creek	12-0253.00 3.8	1st	11	11	11	11	5.8	1.4	0.38	0.10	0.05	0.14	1.35	11
	22-14-2W	15th	11	11	11	11	2.8	0.73	0.20	0.05	0.05	0.40	3.9	11
Skookumchuck R.	12-0264.00 6.4	1st	160	160	160	160	160	103	67	43	35	35	59	160
	12-15-2W	15th	160	160	160	160	130	83	54	35	35	35	96	160
Chehalis R. at Grand Mound	12-0275.00 59.9	1st	1300	1300	1300	1300	1000	600	355	210	165	200	440	1300
	22-15-3W	15th	1300	1300	1300	1300	780	460	275	165	165	250	760	1300
Black River	12-0292.00 4.1	1st	200	200	200	200	170	120	88	70	66	68	100	200
	33-16-4W	15th	200	200	200	200	145	104	75	66	66	70	140	200
Cedar Creek	12-0305.00 1.1	1st	90	90	90	90	70	40	24	15	11	13.8	30	90
	14-16-5W	15th	90	90	90	90	54	31	19	11	11	17	52	90

TABLE 4. BASE FLOWS AND CONTROL STATIONS (Continued)

CONTROL STATION INFORMATION			BASE FLOW LEVELS (in cfs)											
Stream Name and Reach Description	Number River Mile Sec. Twp. Rge.	Date	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Porter Creek	12-0309.00 1.3	1st	90	90	90	90	56	29	21	14.2	12	13.3	28	90
	22-17-5W	15th	90	90	90	90	35	24	17	12	12	15	50	90
Chehalis R. at Porter	12-0310.00 33.3	1st	2500	2500	2500	2500	1900	1060	610	340	260	320	760	2500
	28-17-5W	15th	2500	2500	2500	2500	1420	800	460	260	260	400	1380	2500
Cloquallum Creek	12-0325.00 1.9	1st	150	150	150	150	118	`70	43	29	24	27l	52	150
	36-18-6W	15th	150	150	150	150	92	55	34	24	24	30	88	150
Chehalis R.* near Elma	12-0330.00 23.94	1st	2700	2700	2700	2700	2000	1550	660	380	290	360	830	2700
	10-17-6W	15th	2700	2700	2700	2700	1550	860	500	290	290	450	1500	2700
E. Fk. Satsop R. conf w/W. Fk.	12-0342.00 15.9	1st	280	280	280	280	240	175	130	104	86	80	125	280
	15-19-6W	15th	280	280	280	280	210	152	112	95	80	80	185	280
Decker Dr.	12-0343.00 0.3	1st	130	130	130	130	115	91	72	56	50	54	77	130
	31-19-6W	15th	130	130	130	130	103	81	64	50	50	58	100	130

*Not included in regulation

TABLE 4. BASE FLOWS AND CONTROL STATIONS (Continued)

CONTROL STATION INFORMATION			BASE FLOW LEVELS (in cfs)											
Stream Name and Reach Description	Number River Mile Sec. Twp. Rge.	Date	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
M. Fk. Satsop R.	12-0345.00 0.4	1st	260	260	260	260	203	125	78	48	38	41	83	260
	36-19-7W	15th	260	260	260	260	160	98	61	38	38	45	145	260
W. Fk. Satsop R. *	12-0349.00 0.5	1st	400	400	400	400	325	205	133	84	68	76	144	400
	14-18-7W	15th	400	400	400	400	260	165	107	68	68	85	240	400
Satsop R.	12-0350.00 2.3	1st	1100	1100	1100	1100	910	600	425	300	260	280	475	1100
	36-18-7W	15th	1100	1100	1100	1100	750	500	360	260	260	300	720	1100
Chehalis R. near Satsop	12-0350.02 20.0**	1st	3800	3800	3800	3800	2910	1750	1085	680	550	640	1305	3800
	7-17-6W	15th	3800	3800	3800	3800	2300	1360	860	550	550	750	2220	3800
Wynoochee R.	12-0374.00 5.9	1st	560	560	560	560	560	450	290	185	150	150	360	560
	27-18-8W	15th	560	560	560	560	560	360	230	150	150	230	560	560
Wishkah R.	12-0380.00 16.2	1st	135	135	135	135	135	95	68	47	47	53	91	135
	22-19-9W	15th	135	135	135	135	113	80	57	47	47	60	135	135

*Not included in regulation.

**This location may be below point of tidal influence.

TABLE 4. BASE FLOWS AND CONTROL STATIONS (Continued)

CONTROL STATION INFORMATION			BASE FLOW LEVELS (in cfs)											
Stream Name and Reach Description	Number River Mile Sec. Twp. Rge.	Date	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
E. Fk. Wishkah R.**	12-0381.00 0.9	1st	33	33	33	33	33	21	14	9	9	10.4	20	33
	36-19-9W	15th	33	33	33	33	27	17	11.3	9	9	12	33	33
W. Fk. Hoquiam R.*	12-0385.00 9.4	1st	32	32	32	32	32	20	12.8	8	8	9.4	19	32
	14-18-10W	15th	32	32	32	32	26	16	10	8	8	11	32	32
M. Fk. Hoquiam R.	12-0386.00 1.6	1st	27	27	27	27	27	16	9.5	5.6	5.6	6.7	15	27
	4-18-10W	15th	27	27	27	27	21	12.2	7.4	5.6	5.6	8.0	27	27
E. Fk. Hoquiam R.	12--387.00 7.1	1st	44	44	44	44	44	33	25	19	19	19	34	44
	8-18-9W	15th	44	44	44	44	38	29	22	19	19	25	44	44
Humptulips R.	12-0390.00 24.8	1st	600	600	600	600	600	400	265	170	170	205	390	600
	17-20-10W	15th	600	600	600	600	500	325	215	170	170	250	600	600

*Not included in regulation.

TABLE 4. BASE FLOWS AND CONTROL STATIONS (Continued)

CONTROL STATION INFORMATION			BASE FLOW LEVELS (in cfs)											
Stream Name and Reach Description	Number River Mile Sec. Twp. Rge.	Date	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Elk River	12-0174.00 3.0	1st	50	50	50	50	43	31	22	16	16	20	32	40
	3-16-11W	15th	50	50	50	50	37	26	19	16	16	25	40	40
Johns River	12-0175.00 6.0	1st	70	70	70	70	50	35	24	17	17	17	35	70
	21-16-10W	15th	70	70	70	70	42	29	21	17	17	24	49	70
Newskah Cr.	12-0180.03 3.5	1st	17	17	17	17	13.4	8.3	5.2	3.2	2.5	3.2	8.4	17
	32-17-9W	15th	17	17	17	17	10.7	6.5	4.1	2.5	2.5	4	17	17
Charley Cr.	12-0185.00 2.0	1st	14	14	14	14	11	6.7	4.2	2.5	2.0	2.6	7.1	14
	21-17-9W	15th	14	14	14	14	8.6	5.4	3.3	2	2	3.5	14	14

III. Subbasin Findings

A. Upper Chehalis Drainage - Above Newaukum

1. The Chehalis River originates in southwestern Lewis County and flows north through the Chehalis-Centralia area. The Upper Chehalis drains about 438 square miles with an average annual discharge of 1,600 cfs. The maximum recorded discharge was 11,400 cfs in April 1931. The minimum recorded discharge was 54 cfs in October 1929. (Period of record is March 1929-September 1931.)

2. Municipal water use is concentrated in the communities of Pe Ell, Adna, Boistfort, and Curtis.

3. The existing sources of municipal water for Pe Ell are Lester, Grim, and Mahaffey creeks – located on Weyerhaeuser timber holdings and tributary to the Chehalis River.

4. The Lewis County Rural Water and Sewer Plan of April 1969 recommends that the municipal water source for Pe Ell be changed to the Chehalis River and that a filtration plant be installed.

5. Adna, Boistfort, and Curtis have a community water system that uses Stillman Creek as a source. This system is fairly new and includes a treatment facility.

6. Two communities, Doty and Dryad, do not presently have municipal water. There is a possibility these two communities will install a common system in the future and the source would be Elk Creek at a location west of Doty. This should be discouraged due to lack of adequate stream flows.

7. Potential industrial water demands are projected for the proposed Weyerhaeuser plant near Curtis.

8. Although 5,053 acres have surface water irrigation rights only about one-third of these acres are presently irrigated.

9. Hope, Stearns, Mill, and Bunker creeks are closed for part of the year.

10. South Fork Chehalis River should be closed to further appropriation during July, August, and September.

11. There are potential reservoir sites on the south and west forks of the Chehalis River, on Newman Creek, Elk Creek, Hope Creek, Deep Creek, and the west fork Chehalis River.

B. Newaukum River Drainage

1. The Newaukum River originates in the eastern portion of the Chehalis Basin and flows westerly to join the Chehalis River near Chehalis at River Mile 75.2. It drains a 158 square mile area, with an average discharge of 506 cfs. The maximum recorded discharge was 8,770 cfs in January 1972. The minimum recorded discharge of 12 cfs occurred in September 1949 and August 1967.

2. The main supply of water for Chehalis and Centralia is from the north fork of the Newaukum River, yet both maintain separate intake facilities, separate pipelines to town and separate treatment facilities. As supplemental sources, Chehalis has the Chehalis River at Alexander Park and Centralia has several wells.

3. Napavine and Onalaska both have small community water systems. Napavine's supply comes from two wells located within the city limits. Onalaska's water supply comes from small springs located a short distance northeast of the community.

4. Much of the soil of the Newaukum Basin has a high clay content and is not suitable for septic tanks. The groundwater table is close to the surface. Wells in the valley show salinity and hardness in sufficient amounts to make the water unattractive for domestic use.

5. Newaukum Valley is agricultural in use. Grasses grown for hay predominate, but small grain, vegetable production, and pasture are also important. Agriculture represents the largest single-purpose use of water. From current water right information, nearly 3,000 acres are covered by surface water irrigation rights. Recent agriculture census indicates about 1,000 acres are actually irrigated from surface water and another 1,000 acres are irrigated from ground water.

6. The Newaukum is important for migrating, rearing, and spawning salmonid. For this reason, it is also important to the commercial and sport fishery.

7. The Bureau of Reclamation has contemplated a storage project at the Alpha Dam site, South Fork Newaukum, primarily for irrigation, but also with a capacity for flood control and water supply for the City of Chehalis. The project is not considered to be economically feasible at this time.

   Other potential reservoir sites are on Bear Creek, the North Fork Newaukum, Lucas Creek, and the Middle Fork Newaukum.

8. The Middle Fork Newaukum, Kearney Creek, and Beaver Creek are closed part of the year.

C. Middle Chehalis - Below Newaukum River and Above Grand Mound, Excluding Skookumchuck Drainage.

1. The Middle Chehalis Subbasin above Grand Mound consists of the minor streams between the mouth of the Newaukum and the gaging station at Grand Mound. The total watershed area is 118 square miles, and the two principal tributaries are Lincoln Creek and Salzer Creek. The average annual discharge and drainage are given below:

Stream	Watershed Area (sq. mi.)	Average Annual Discharge (cfs)
Salzer Creek	17.3	38
Lincoln Creek	43.2	123
Other	57.5	110
Total	118.0	271

2. The major economic component of the Chehalis-Centralia area is the wood product industry. However, the area is diversifying to a broad service-oriented base. Light industrial parks have been established and are benefiting from the network of major interstate and rail systems.

3. Municipal and industrial water use for Centralia-Chehalis was discussed in the Newaukum River Drainage.

4. Agricultural lands are concentrated along the Chehalis River and tributaries such as Salzer Creek and Lincoln Creek. Cattle, rowcrops, and forage are the primary agriculture products.

5. Dillenbaugh, Berwick, and Lincoln creeks are closed for part of the year.

6. Potential reservoir sits have been identified on the middle Chehalis, Salzer Creek, Lincoln Creek, and Sherman Creek.

D. Skookumchuck River Drainage

1. The Skookumchuck rises in the westernmost region of the Snoqualmie National Forest and flows in a northwesterly direction to the town of Bucoda, and from there to a confluence with the Chehalis River at Centralia. With its tributaries, it drains 181 square miles. Much of the basin is in coniferous forest, but the river valley has agricultural use.

2. The average annual discharge from the basin is estimated to be 540 cfs. A major tributary of the Skookumchuck is Hanaford Creek with a drainage area of 58 square miles and an average annual flow of 85 cfs. A reservoir for power production, with a capacity of 35,000 acre-feet, was constructed on the Skookumchuck between 1968 and 1971 by Pacific Power and Light Co., with regulation of flow beginning in 1971.

3. The water use picture in the Skookumchuck is somewhat confusing because of the storage reservoir and the use of water for the Centralia thermoelectric plant in the Hanaford Creek watershed. Also the City of Centralia considers the Skookumchuck to be a possible future source of municipal and industry water.

4. Pacific Power and Light Company has a water right permit for 80 cfs, but the existing diversion capacity is 50 cfs which is used intermittently; hence, the monthly use is considerably less. The monthly use is related to the power production for the month. There has been an agreement between the power groups and the Department of Fisheries which specifies a release from the storage reservoir of 50 cfs plus inflows and for substantial increase in flows during part of September and October to enhance fish population.

5. A number of rights exist for use of the Skookumchuck as a municipal and industrial source which have not actually been developed. Information on these are give below:

Holder	Priority Date	Status	Flow (cfs)
Town of Bucoda	1934	Certificate	1.0
City of Centralia	1955	Application	50.0
Town of Bucoda	1924	Certificate	11.1
Sylvan Products	1950	Certificate	2.0
Pacific Power & Light	1966	Application	20.0
Pacific Power & Light	1969	Permit	3.0
Pacific Power & Light	1966	Permit	80.0
Total	-	-	167.1

6. The 80 cfs water permit held by Pacific Power and Light Company is covered by reservoir storage and would not result in a total depletion of 80 cfs. The remaining rights are for 87.1 cfs - much of which could not be supplied by the natural flows in the river.

7. Bucoda has the only community water system in this drainage area and their water supply is from wells located within the community. Bucoda's

surface water rights on the Skookumchuck River for 11.1 cfs may never be used.

8. There are other minor diversions for domestic and irrigation uses.

9. Irrigation water rights from surface water in the Skookumchuck drainage are for 893 acres. The actual land irrigated from surface water is estimated to be 400 acres.

10. Hanaford Creek and the Skookumchuck River have heavy use by migrating salmon. They are also important for boating, fishing, and wildlife uses.

11. The SCS has proposed small watershed projects for Coffee Creek and China Creek subbasins within the Skookumchuck drainage area.

12. The Skookumchuck River and Hanaford Creek are closed for part of the year.

13. There is a potential reservoir site on Salmon Creek, a tributary of the Skookumchuck.

E. Middle Chehalis - Below Grand Mound, Drainage Area Between Grand Mound and Porter.

1. The Middle Chehalis - Below Grand Mound, is that portion of the Chehalis Basin between the USGS gage at Grand Mound and the gage at Porter, exclusive of the Black River Drainage. The watershed area is 263 square miles. Information on the various streams in the subbasin is given below:

Stream	Drainage Area (sq. mi.)	Runoff (cfs)
Scatter Creek	36.6	76
Cedar Creek	39.5	101
Garrard Creek	27.7	99
Rock Creek	24.8	89
Porter Creek	39.8	142
Other	94.6	288
Total	263.0	790

2. The average annual discharge of the Chehalis River at Porter from January 1952 to September 1972 was 4,287 cfs. The maximum recorded discharge was 55,600 cfs during January 1972. A minimum discharge of 164 cfs was recorded in October of 1952.

3. Contamination of the ground-water source has occurred in some of the municipal systems from inoperative septic tanks. None of these communities has a sewage system.

4. Tenino, Rochester, and Oakville all receive municipal water from this drainage. Their demand is met from wells located within the communities. Only Oakville is connected to a surface water source, and that is for standby use.

5. Potential industrial sites are located in the Rochester-Maytown-Tenino-Grand Mound area.

6. Agricultural lands are located along the Chehalis River and tributaries such as Scatter Creek and Garrard Creek. Cattle, poultry, rowcrops, and forage are the primary agricultural products.

7. Rock, Williams, Garrard, and Scatter creeks are closed.

F. Black River Drainage

1. The Black River originates at Black Lake and flows in a southwesterly direction to join the Chehalis River near Oakville. It drains 136 square miles and has an estimated annual runoff of 330 cfs. Black Lake is included in this drainage, however, the natural channel from lake to river is closed by vegetative growth and beaver dams.

   The tributaries of the Black River include Salmon Creek, Mima Creek, Waddell Creek, and Beaver Creek.

2. Littlerock has the only community water system in this drainage. Their source of water supply is from wells located within the community. The main industry is a lumber mill located within Littlerock and it has its own well.

3. The Black River Valley is agricultural in use. A total of 2,216 acres have surface water irrigation rights. The estimated actual irrigated land is 650 acres.

4. Black River and tributaries are closed to further consumptive appropriation for part of the year.

5. There is a potential reservoir site on Waddell Creek.

G. Cloquallam Creek Drainage

1. The headwaters of Cloquallam Creek are about 6 miles north of McCleary, in Mason County. The stream flows southward about 20 miles to join the Chehalis at River Mile 25.2.

   The Cloquallam drainage area, with the inclusion of Wildcat Creek, covers an area of about 65 square miles. Rainfall ranges from 60-85 inches annually.

   The average discharge of the Cloquallam is 375 cfs. The maximum recorded discharge was 5,080 cfs in December 1959. The minimum recorded discharge was 6.8 cfs in September 1945.

2. McCleary and Elma are the only two communities located within the Cloquallam Creek drainage with municipal water systems. Both communities obtain their municipal water supply from wells, and water for future growth may come from wells.

3. Simpson's mill at McCleary is the largest single industry in this subbasin. Simpson's industrial water supply comes from a well, from which 133 acre-feet can be withdrawn annually.

4. The total instantaneous rate of diversion for commercial/industrial use from the surface water resource is less than one cfs.

5. Agriculture represents the largest single purpose use of water. According to current information, about 400 acres are covered by surface water irrigation rights. However, the latest agriculture census indicates only a quarter of those acres are actually irrigated. Most agriculture in this subbasin is located along the lower Cloquallam and on the Chehalis flood plain below Elma.

6. Cloquallum Creek is important for anadromous and native fish populations.

7. Wildcat Creek is closed for part of the year.

8. A potential reservoir site has been identified on Falls Creek.

H. Satsop River Drainage

1. The Satsop River originates in the southern part of the Olympic Mountains and flows southward to join the main stem Chehalis River (at River Mile 20.2) near the Town of Satsop. The Satsop has four major tributaries: The

East, West, and Middle Forks, and Decker Creek. The subbasin cover 299 square miles.

2. The average flow of the Satsop is 1,968 cfs, with a recorded maximum of 46,600 cfs in January 1935 and a recorded minimum of 166 cfs in September 1938.

3. Average rainfall ranges from 70-175 inches per year and flood waters rise and fall rapidly.

   Several lakes act as sources for some of the smaller creeks in the Satsop system. There are also three small reservoirs located about three miles north of the confluence of the East and West forks.

4. Approximately 30 percent of the flow of the Chehalis River at Cosmopolis during August is from the Satsop, in contrast to an annual percentage of 26 percent.

5. Water quality and water quantity are high. The only supply use is for minor irrigation. There are no municipal water systems using water from the Satsop Drainage.

   The lower Satsop Valley is intensively farmed in large acreages. Other uses are forestry and recreation.

6. A total of 562 acres have surface irrigation water rights.

   Approximately 50 percent of the irrigation rights are actually used.

7. Potential reservoir sites are on Dry Run Creek and the West Fork Satsop.

I. Wynoochee River Drainage

1. The Wynoochee River has its headwaters in the Olympic Mountains and flows southerly to join the main stem Chehalis River near the Town of Montesano. The main tributaries to the Wynoochee are Schaefer Creek and Black Creek. The Wynoochee River drains a basin of 185 square miles. The average rainfall ranges from 75-220 inches annually. Basin runoff is characteristically rapid and river floods rise and fall rapidly. Since 1972, river flows have been regulated by the Wynoochee Dam about 46 miles upstream from the mouth.

2. The average yield is 1,316 cfs. The maximum recorded flow was 25,500 cfs in January 1968, and the minimum was 3.0 cfs in August 1967.

3. Most of the land is commercial forest and is corporately owned. A small amount is used for pasture and crops. In the lower reaches there is considerable dairy farming.

4. The City of Aberdeen has a certificated water right for 110 cfs from the Wynoochee River and diversion facility capacity of 125 cfs. The City also has water right permits for an additional 190 cfs.

5. A total of 2,140 acres have irrigation water rights. Approximately one-third actually use these rights.

6. The Wynoochee River has heavy usage by anadromous fish.

7. A potential reservoir site exists on Black Creek, a tributary of the Wynoochee.

8. The Wynoochee River is closed for part of the year.

J. Wishkah River Drainage

1. The Wishkah River Basin drains the southern slopes of the Olympic Mountains and covers an area of 100 square miles. Approximately 6 miles above Aberdeen, the East and West Forks of the Wishkah combine. They flow into the Chehalis Basin at River Mile 0.15.

   The minimum recorded discharge was 33 cfs in October 1942, and the maximum recorded discharge was 7,400 cfs 10 days later.

2. The land is used predominantly for commercial forest, with some pasture land. Ownership is about equal between private and corporate interests with small municipal and county holdings.

   Some farming, fishing, and recreational homesites appear on the upper Wishkah. In the lower reaches fishing vessels use the banks for storage and repairs.

3. The City of Aberdeen diverts up to 10 cfs for municipal water supply. The Aberdeen Reservoir is located at River Mile 32.3 on the main stem. ITT Rayonier holds rights to 15 cfs of the Wishkah.

4. A total of 179 acres have surface water irrigation rights. An estimated one-third of these rights are used.

5. The Wishkah has heavy usage by anadromous fish.

6. There is a potential reservoir site on the East Fork.

K. Hoquiam River Drainage

1. The Hoquiam River originates on the southern slopes of the Olympic Mountain Range and drains an area of 90 square miles. The East and West Forks and Main Branch all flow southerly and converge above the City of Hoquiam.

   The Little Hoquiam River flows eastward and joins the combined river about 0.4 miles upstream from the confluence with the East Fork. The river flows into Grays Harbor between the cities of Aberdeen and Hoquiam.

   A minimum flow of 6.1 cfs was recorded in October 1942. No records for maximum or average flows are available.

   Channel flows are regulated by a dam and reservoir storage on the west fork.

2. The land is predominantly commercial forest, except in the vicinity of Hoquiam. The upper reaches are used for transportation of logs, fishing, water supply, and some recreation. The lower reaches are used extensively for transportation.

3. Approximately 2.5 cfs are diverted by the City of Hoquiam for municipal supply.

4. The Hoquiam is important for the production of anadromous and resident fishes.

5. Forty-three acres have surface water irrigation rights.

L. Humptulips River Drainage

1. The East and West Forks of the Humptulips River originate in the Olympic National Forest and merge 4.5 miles above the Town of Humptulips. The river flows southwesterly to Grays Harbor at North Bay.

   The Humptulips drains an area of 245 square miles. The average discharge is 1,344 cfs. The maximum recorded discharge was 33,000 cfs in January 1935. The minimum recorded discharge was 82 cfs in September 1944.

2. The land is predominantly commercial forest, with some pasture and cropland. Uses of the basin include fishing, gravel extraction, logging, water supply, some farming, and recreation.

3. The City of Hoquiam has a water right permit for 100 cfs from the Humptulips.

4. Two hundred and twenty acres have irrigation water rights, but only an estimated one-third of the acres are actually irrigated.

5. The Humptulips is important for salmon and trout populations.

6. Potential reservoir sites exist on Deep Creek, the Upper West Fork, and the Lower West Fork, and the Upper East Fork.

M. Lower Chehalis Drainage - Below Porter

1. The Lower Chehalis Drainage includes the remaining area below Porter not discussed in the Cloquallam, Satsop, Wynoochee, Wishkah, Hoquiam, and Humptulips drainages.

   The total area of the Lower Chehalis tributaries is 169 square miles. The two largest creeks that merge with the Chehalis River (below Porter, but above the mouth) are Mox Chehalis Creek, which drains 27 square miles, and Newman Creek, with a drainage area of 23 square miles. The two largest rivers that empty directly into Grays Harbor are John River and Elk River. These rivers drain a forested area.

2. Little information is available on water use within this basin, but it is probably very limited. There are surface water rights for irrigation of 231 acres from Mox Chehalis Creek.

3. Studies are now underway for a firm water supply of 80 cfs for the Satsop thermonuclear power plant. The proposed location of this plant is south of the Chehalis River near the mouth of the Satsop River. Both ground and surface water sources are being considered.

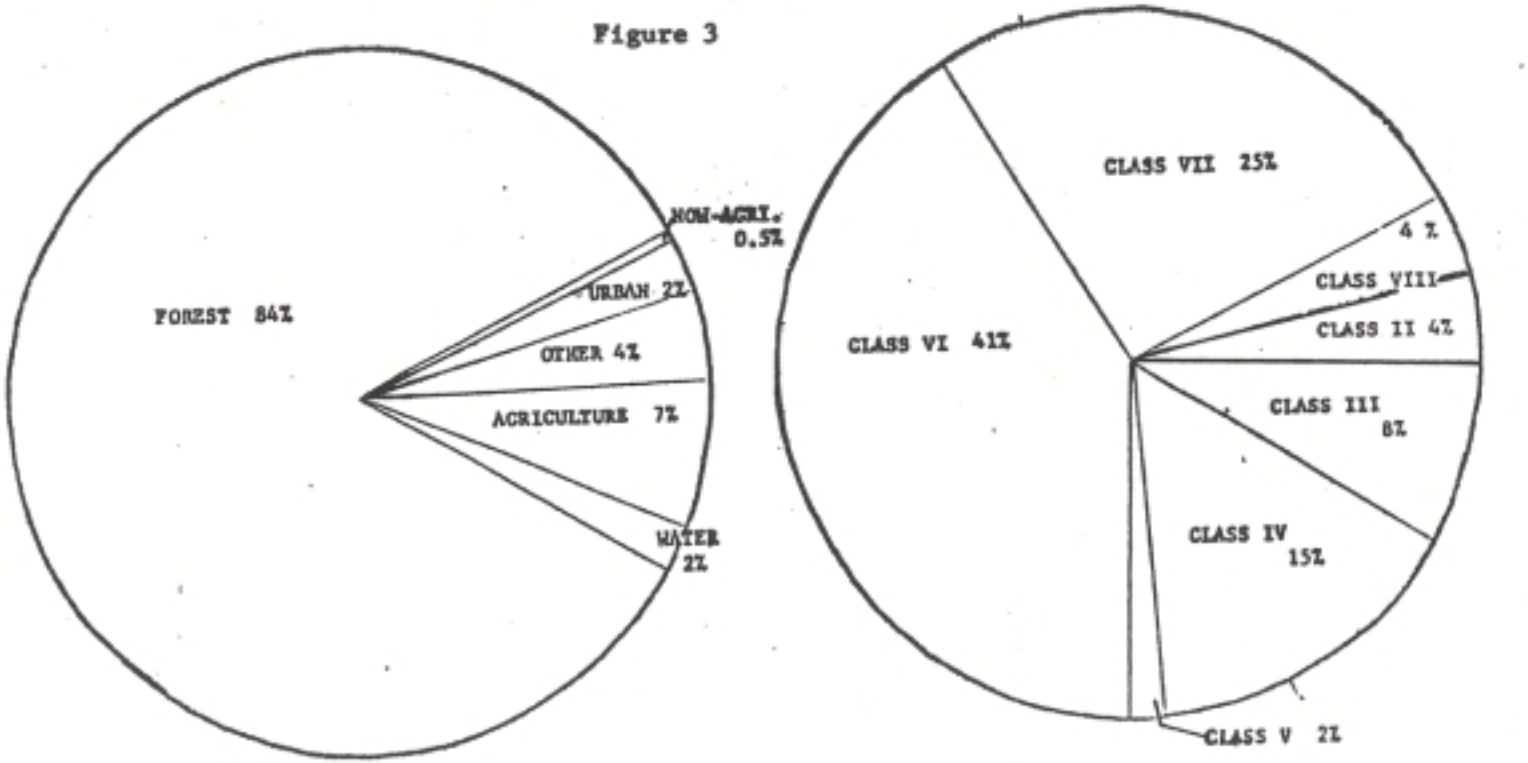
4. Mox Chehalis and Newman creeks are important for anadromous and resident fishes.

5. Mox Chehalis Creek is closed for part of the year.

CHEHALIS BASIN

LAND USE & CAPABILITY CHART

Figure 3



Land Use

Agricultural Land Capability

Source: Southwest Washington River Basins Type Iv Survey, Preliminary Field Draft 1974.

FIGURE 4

CHEHALIS RIVER BASIN
Irrigated Acres Based on Surface Water Rights
April, 1975

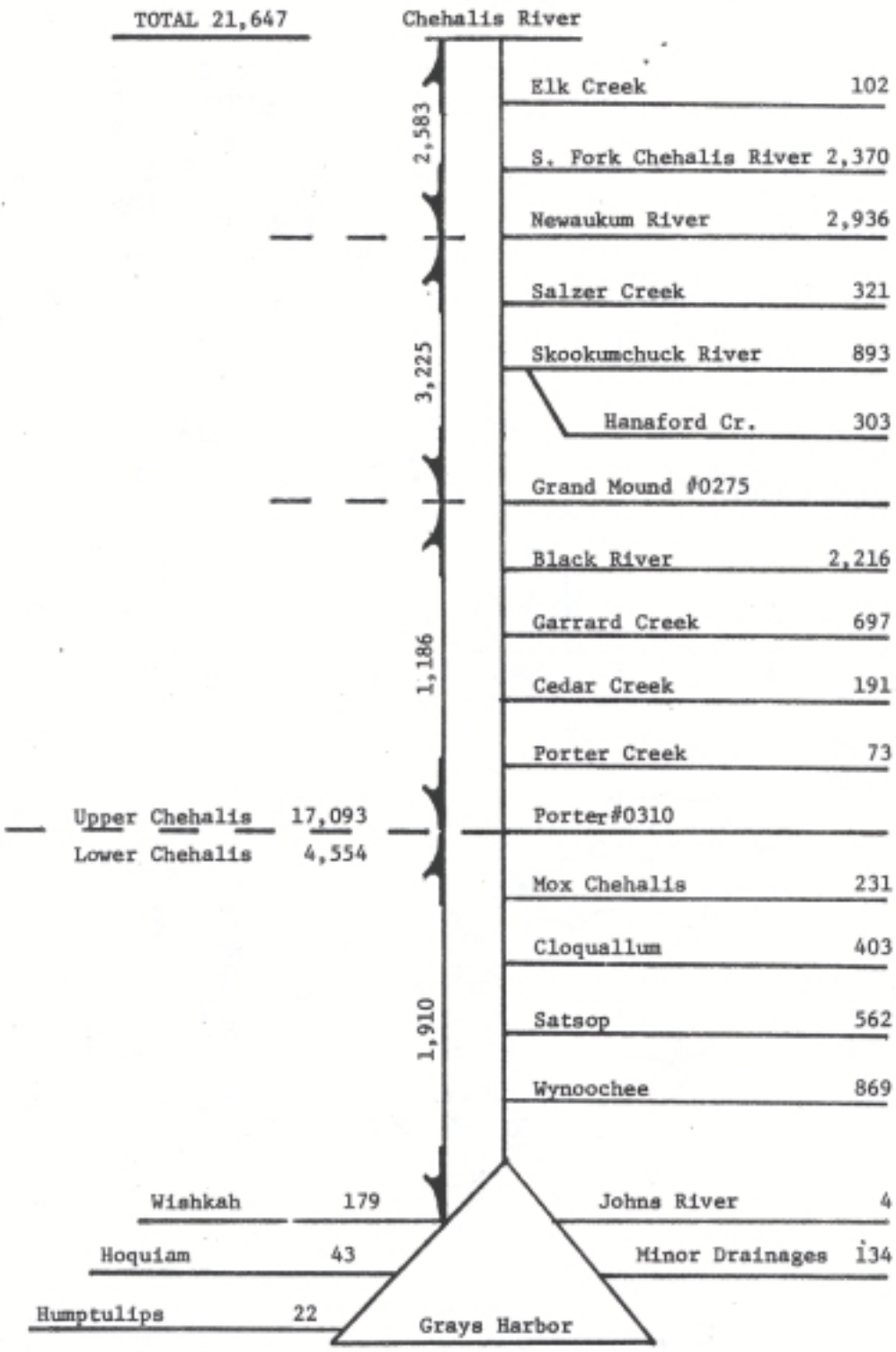


Table 5

POTENTIAL RESERVOIR SITES BY WATERSHED, CHEHALIS BASIN 1/

Watershed Number and Name	Reservoir Name and Site No.	Location Sec.	Twp.	Rng.	Dam Height (feet)	Annual Yield 2/ (1,000 ac. ft.)	Storage Capacity (1,000 ac. ft.)	Surface Area (acres)	Drainage Area (100 acres)
6-1 Wynoochee River	Black Creek	103	24	18W	8W	50	44	8	498	131
6-1 " "	Osbow	105	12	21	8W	295	499	276	3,489	460
6-2 Satsop River	Dry Run Creek	104	22	19	8W	40	16	3	249	36
6-2 " "	West Fork Satsop	117	33	19	7W	120	306	90	2,043	529
6-3 Cloquallum River	Falls Creek	106	13	18	6W	45	8	5	349	17
6-4 Newman Creek	Newman Creek	110	21	18	7W	55	19	6	598	44
6-5 Newaukum River	Boar Creek	81	35	14	1W	115	84	36	837	200
6-5 " "	Alpha Creek	82	12	13	1E	220	72	54	668	170
6-5 " "	South Fork Newaukum	83	23	13	1E	100	102	32	1,047	241
6-5 " "	North Fork Newaukum	84	17	13	1W	90	167	71	2,094	306
6-5 " "	Lucas Creek	85	31	13	1E	85	17	6	199	62
6-5 " "	Middle Fork Newaukum	86	15	13	1W	40	17	1	120	48
6-6 Skookumchuck River	Salmon Creek	71	12	15	1W	75	7	2	110	25
6-7 Stearns Creek	Stearns Creek	124	24	13	3W	85	30	18	1,206	168
6-8 S. Fork Chehalis River	Above Hanlon	62	2	10	4W	100	24	7	269	39
6-8 " " " "	Hanlon Creek	61	34	11	4W	75	20	2	110	32
6-8 " " " "	Below Trout Creek	60	19	11	5W	100	72	5	159	123
6-8 " " " "	Point Hill	79	31	12	3W	80	115	50	1,495	229
6-8 " " " "	Boistfort	78	24	12	4W	100	142	100	1,405	243
6-8 " " " "	Lost Creek	57	10	12	4W	60	17	6	349	39
6-8 " " " "	Lake Creek	58	21	12	3W	100	21	40	1,037	49
6-8 " " " "	Stillman Creek	59	2	11	4W	100	34	4	130	58
6-9 W. Fork Chehalis River	Charlies Hump	74	3	12	5W	240	296	95	1,057	441
6-9 " " " "	Dryad	72	11	13	5W	80	306	27	1,256	454
6-9 " " " "	Meskill	76	10	13	4W	90	672	50	2,910	1002
6-8 South & West Forks, 6-9 Chehalis River	Ruth	77	13	13	4W	50	953	20	3,000	1420
6-10 Elk Creek	Little Elk Creek	50	32	14	6W	75	16	9	389	37
6-10 " "	Elk Creek	51	35	14	6W	55	63	11	638	149
6-10 " "	Doty	73	8	13	5W	115	125	81	1,405	298
6-11 Hope Creek	Hope Creek	56	8	13	4W	75	12	8	319	36
6-12 Deep Creek	Bunker Creek	53	26	14	4W	40	29	6	478	97
6-12 " "	Upper Deep Creek	52	12	14	4W	25	3	3	120	10
6-12 " "	Deep Creek	54	25	14	4W	75	18	9	379	60
6-13 West Chehalis River	Scammon Creek	55	11	14	5W	55	4	3	150	20
6-14 Salzer Creek	Salzer	75	26	14	2W	75	8	12	508	42
6-14 " "	Lower Salzer	80	15	14	2W	50	15	6	299	81
6-15 Lincoln Creek	North Fork Lincoln	32	36	15	4W	75	7	12	449	37
6-17 Black River	Waddell Creek	69	21	17	3W	50	24	3	209	79
6-18 Oakville Elma	Sherman Creek	68	35	17	4W	85	29	6	239	85
6-19 S. Side Chehalis River	Workman Creek	65	16	17	6W	50	15	3	209	58
6-19 " " " "	Delezene Creek	64	24	17	6W	60	22	5	299	85
6-19 " " " "	Rock Creek	63	12	16	6W	75	24	5	209	55
6-19 " " " "	Kellogg Creek	67	8	15	5W	75	6	4	150	15
6-19 " " " "	Independence Creek	70	15	15	4W	100	17	48	1,495	96
0-109 Humptulips River	Deep Creek	49	30	19	10W	100	14	12	249	32
0-109 " "	Upper West Fork	121	23	22	9W	150	221	32	578	239
0-109 " "	Lower West Fork	120	8	21	9W	120	324	47	1,047	351
0-109 " "	Upper East Fork	119	4	21	8W	180	150	35	508	130
0-112 Wishka River	East Fork Wishka	118	25	19	9W	170	72	66	1,307	116
0-115 Southeast Grays Harbor	Charley Creek	21	26	17	9W	55	10	3	159	21
0-117 Elk River	Middle Branch	31	31	16	10W	45	7	1	90	14
0-117 " "	East Branch	33	5	15	10W	65	19	5	269	44

1/ This partial listing of potential reservoir sites was prepared from topographic maps. Topography only was considered and no foundation or benefit studies were made.
2/ Estimated water runoff at site.

NOTE: Taken from SOUTHWESTERN WASHINGTON RIVER BASINS TYPE IV SURVEY Preliminary Field Draft 1974

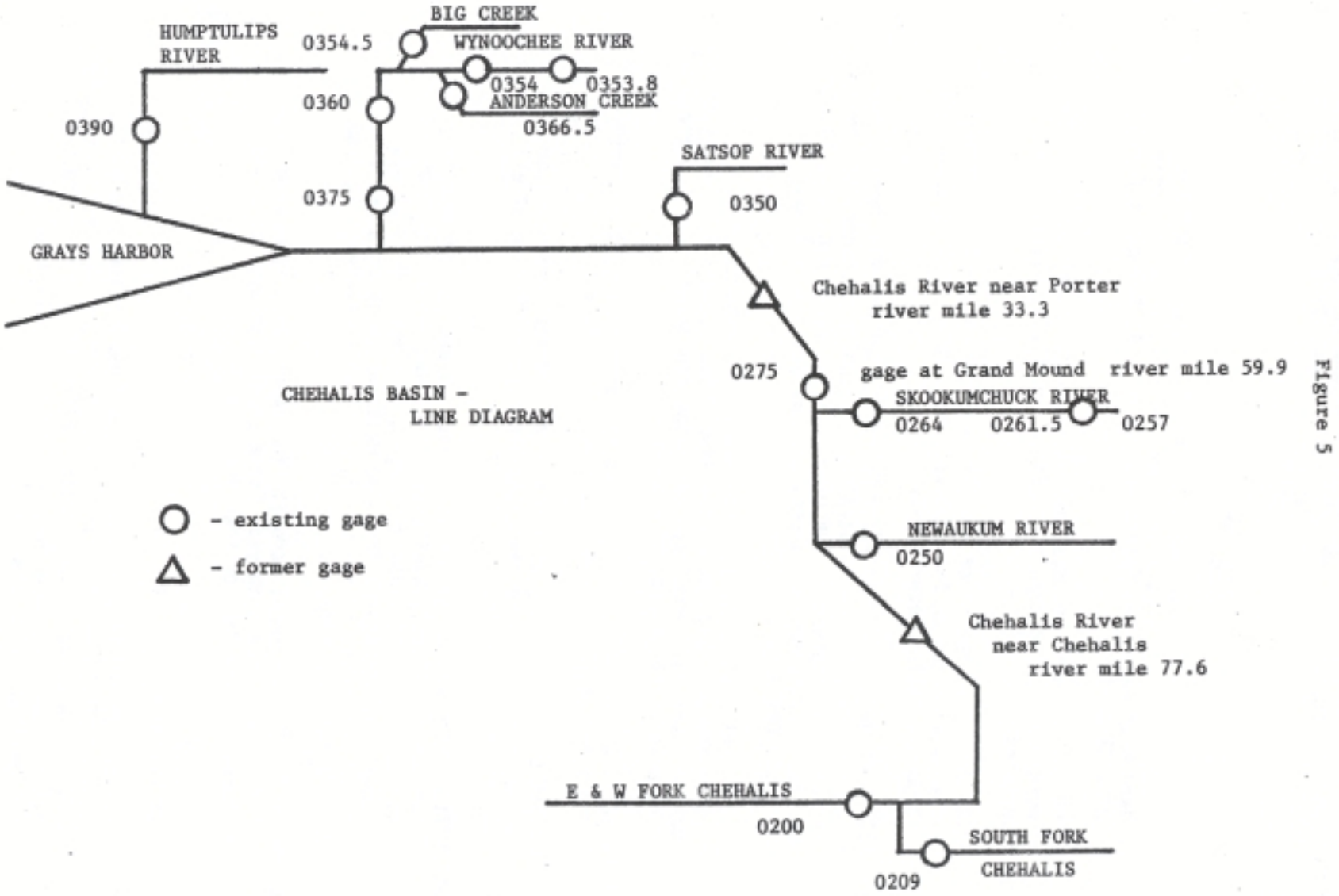

BIG CREEK
HUMPTULIPS RIVER
0354.5
WYNOOCHEE RIVER
0354
0353.8
0360
ANDERSON CREEK
0366.5
0390
SATSOP RIVER
0375
0350
GRAYS HARBOR
Chehalis River near Porter
river mile 33.3
0275
gage at Grand Mound river mile 59.9
SKOOKUMCHUCK RIVER
0264
0261.5
0257
CHEHALIS BASIN -
LINE DIAGRAM
- existing gage
- former gage
NEWAUKUM RIVER
0250
Chehalis River
near Chehalis
river mile 77.6
E & W FORK CHEHALIS
0200
SOUTH FORK
CHEHALIS
0209

Figure 5


Wildcat Creek
Wynoochee River
Hox Chehalis
Grays Harbor
Beaver Ck.
Rock Ck
Black River
Scatter Ck.
Williams
Skookumchuck River
Garrard
Lincoln Ck.
Hanaford Ck.
Bunker Ck.
Hill Ck.
Dillenbaugh
Beaver Ck.
Kearney Ck.
Hope
Steamus
Middle Fork Newaukum River
Chehalis River
CHEHALIS BASIN
Figure 6
closed streams

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8 Sewage Drainage Basin Plan, Upper Chehalis River (Basin 23). R.W. Beck and Associates, January, 1975.

9 Rural Water and Sewer Plan, Lewis County. Lewis County Planning Commission, April 1999.

10 Comprehensive Water and Sewer Plan for Grays Harbor County. R.W. Beck and Associates, May 1970.

11 Thurston County A Comprehensive Water and Sewerage Plan

12 WRIS Technical Bulletin No. 6, April 1975

13 Low-Flow Characteristics of Streams in The Grays Harbor Drainages Washington U.S. Geological Survey, openfile report, 1975

GLOSSARY

ACRE FOOT: A unit for measuring the volume of water or sediment. It is equal to the amount of water needed to cover one acre of land with water one foot deep. This is 43,560 cubic feet, or 325,851 gallons.

ALLOCATION: The process of designating specific amounts of the water resource for application to specific beneficial uses or use categories.

APPROPRIATION: The process of legally encumbering specific amounts of the water resource for application to beneficial uses through instruments called water rights.

BASE FLOW: As defined in the Water Resources Act of 1971, base flows are the flows administratively established "necessary to provide for the preservation of wildlife, fish, scenic, aesthetic and other environmental values, and navigational values." RCW 90.54.020 3 (a).

CLOSURE: Administrative measure to keep water resources from further appropriation to consumptive uses. Generally, domestic household use and normal stockwatering are exempted when there is no practicable source of supply.

CONFLUENCE: A place of meeting of two or more streams; the point where a tributary joins the main stream; a fork.

CONJUNCTIVE USE: The integrated use of ground and surface water in such a way as to increase the benefits of the use of all the waters of a basin.

CONSUMPTIVE USE: The amount of water used in such a way that it is no longer directly available. Includes water discharged into the air during industrial uses, or given off by plants as they grow (transpiration), or water which is retained in the plant tissues, or any use of water which prevents it from being directly available.

CONSUMPTIVE USE REQUIREMENT (crop): The amount of consumptive use for irrigation each year for a particular type of crop. Measured in acre-feet or feet per acre.

CONTROL STATION: Any measurement site at which a regulatory base flow has been established.'

CUBIC FEET PER SECOND (cfs): A unit of measure for the rate of discharge of water. One cubic foot per second is the rate of flow of a stream with a cross section of one square foot which is flowing at one foot per second. It is equal to 448.8 gallons per minute.

DISCHARGE: In simplest form, discharge simply means outflow. The term can describe the flow of water from a faucet or from a drainage basin covering hundreds of square miles.

DIVERSION: Taking water from a stream or other body of water into a canal, pipe, or other conduit.

DOMESTIC USE: Water used by a single household generally including one-half an acre lawn or non-commercial garden irrigation.

DRAINAGE AREA: The area of land drained by a stream, measured in the horizontal plane. It is the area which is enclosed by a drainage divide.

DRAINAGE BASIN: A part of the surface of the earth that is occupied by a drainage system consisting of a surface stream or a permanent body of water together with all tributary streams and bodies of impounded water (lakes, ponds, reservoirs, etc.).

FLOOD: Any relatively high streamflow or an overflow that comes from a river or body of water and causes or threatens damage.

GAGING STATION: A particular location on a stream, canal, lake, or reservoir where systematic measurements of the quantity of water flowing are made.

GROUND WATER: Water in the ground that is in the zone of saturation. Natural recharge includes water added by rainfall, flowing through pores or small openings in the soil into the water table. Artificial recharge includes adding water to the aquifer through wells.

HYDRAULIC CONTINUITY: A cause and effect relationship between water under the ground with water standing or flowing on the surface.

HYDROGRAPH: A graph showing varying streamflow (or stream discharge) with respect to time during a year as determined at a specific cross-sectional location in the stream.

INSTREAM VALUE: The attitude of society respecting the use of water instream for aesthetic, fish and wildlife, recreation, hydroelectric and general environmental purposes.

NON-COMMERCIAL AGRICULTURAL IRRIGATION: Beneficial use of water upon single family tracts of not more than three acres for the purpose of crops and livestock for domestic use.

NON-CONSUMPTIVE USE: Use of water in a manner which does not consume the resource. Fishery, aesthetic and hydropower uses are examples of non-consumptive use.

PERENNIAL STREAM: A stream, at any given location, is considered perennial if its natural flow is normally continuous.

PRECIPITATION: The discharge of water, as rain, snow, hail, etc. out of the atmosphere, generally onto land or water surfaces. This is the process which permits atmospheric

water to become surface or subsurface water. The term precipitation is often used to describe the amount of water that is precipitated.

PUBLIC WATER SUPPLY: The system for the collection, treatment, storage, and distribution of potable water from the sources of supply to any community, collection or number of individuals, but excluding water supplies serving one single family residence.

RESERVATION: An approved priority claim to water for a future beneficial use.

RETURN FLOW (irrigation): Irrigation water which is not consumed in evaporation or plant growth, and which returns to a surface stream or ground water aquifer.

RELINQUISHMENT: Reversion to the state of a right to divert or withdraw water.

RIPARIAN: Pertaining to the banks of streams, lakes, or tidewater.

RIVER BASIN: The total area drained by a river and its tributaries; watershed; drainage basin.

RUNOFF: That part of precipitation that appears in surface streams. This is the streamflow before it is affected by artificial diversions, reservoirs, or other man-made changes in or on stream channels.

STORAGE: Water naturally or artificially impounded in surface or underground reservoirs.

STREAMFLOW: The discharge or water flow that occurs in a natural channel. The word discharge can be applied to a canal, but streamflow describes only the discharge in a surface stream course. Streamflow applies to discharge whether or not it is affected by diversion or reservoirs.

STREAM MANAGEMENT UNIT: Stream segments, reaches or tributaries, each containing a control station, which are identified as units for defining base flow levels.

APPROPRIATION LIMIT: The level beyond which appropriation permits will not be granted.

WATER RIGHT: A legal right and property interest subject to certain limitations to obtain water from specific sources for application to beneficial use. No water right exists until a permit is issued stating the amount of water and beneficial uses involved. Upon proof of beneficial use, a certificate is issued to the applicant.

WATERSHED: The area drained by a given stream; drainage basin.

WITHDRAW: The administrative procedure of closing a water supply source from further appropriation for an indefinite period of time. RCW 90.54.050(2).

APPENDIX

CHEHALIS RIVER BASIN
WATER RESOURCES MANAGEMENT PROGRAM

TABLE OF CONTENTS

FREQUENCY AND WATER USE DATA Page

DESCRIPTION: Chehalis River near Doty
DATE: May 1975

USGS GAGE: 12-0200
RIVER MILE: 101.8

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	322	902	1209	1215	1244	881	573	280	136	68	50	79
Base Flow (Q_b)	49	150	260	260	260	260	260	146	82	46	31	31
Q_s - Q_b	273	752	949	955	984	621	313	134	54	22	19	48
Estimate of Present Consumption	2	2	2	2	2	2	2	2	2	3	2	2
Proposed flow available for consumptive use	271	750	947	953	982	619	311	132	52	19	17	46

Period of Record: 1940-1964

DESCRIPTION: Elk Creek near Doty
DATE: October 19976

USGS GAGE: 12-0205
RIVER MILE: 2.5

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	71	215	342	320	407	241	157	91	51	26	19	25
Base Flow (Q_b)	17	56	100	100	100	100	100	57	32	19	14	14
Q_s - Q_b	54	159	242	220	307	141	57	34	19	7	5	11
Estimate of Present Consumption	0	0	0	0	0	0	0	0	0	0	0	0
Proposed flow available for consumptive use	54	159	242	220	307	141	57	34	19	7	5	11

Period of Record: 1942-50, 1967-70

Addendum 10/76

DESCRIPTION: South Fork Chehalis River
DATE: July 1975

USGS GAGE: 12-0209.00
RIVER MILE: 8.0

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	60	261	448	483	405	327	170	83	36	16	9	15
Base Flow (Q_b)	11	43	85	85	85	85	85	43	22	11	6	6
Q_s - Q_b	49	218	363	398	320	242	85	40	14	4	3	9
Estimate of Present Consumption	0	0	0	0	0	0	0	0	0	0	0	0
Proposed flow available for consumptive use	49	218	363	398	320	242	85	38	12	1	1	7

Period of Record: 1965-1974

DESCRIPTION: South Fork Chehalis
DATE: June 1975

USGS GAGE: 12-2016.30
RIVER MILE: 0.3

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	145	627	960	1030	932	654	370	183	81	37	24	28
Base Flow (Q_b)	28	105	200	200	200	200	200	105	55	29	15	15
Q_s - Q_b	118	560	842	912	814	536	252	88	32	10	8	12
Estimate of Present Consumption	0	0	0	0	0	0	0	2	11	17	11	3
Proposed flow available for consumptive use	118	560	842	912	814	536	252	86	21	-7	-3	9

Period of Record: 7/1942 to 10/1942: Correlated from gage 12-0210.00

DESCRIPTION: Chehalis River near Chehalis
DATE: May 1975

USGS GAGE: 12-0235
RIVER MILE: 77.6

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	570	2200	3600	3800	3500	2600	1600	680	390	190	115	150
Base Flow (Q_b)	115	390	700	700	700	700	700	400	230	130	75	75
Q_s - Q_b	455	1810	2900	3100	2800	1900	900	280	160	60	40	75
Estimate of Present Consumption	2	2	2	2	2	2	2	5	21	35	23	8
Proposed flow available for consumptive use	453	1808	2898	3098	2798	1898	898	275	139	25	17	67

Period of Record: 1930-1970; Correlation with Chehalis River at Grand Mound

DESCRIPTION: South Fork Newaukum
DATE: October 1976

USGS GAGE: 12-0240
RIVER MILE: 22.8

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	110	283	347	423	356	271	231	148	90	53	40	53
Base Flow (Q_b)	40	85	125	125	125	125	125	88	56	36	27	27
Q_s - Q_b	70	198	222	298	231	146	106	60	34	17	13	26
Estimate of Present Consumption	0	0	0	0	0	0	0	1	4	7	5	2
Proposed flow available for consumptive use	70	198	222	298	231	146	106	59	30	10	8	24

Period of Record: 1942-48, 1957-60

Addendum 10/76

DESCRIPTION: North Fork Newaukum River
DATE: October 1976

USGS GAGE: 12-0245
RIVER MILE: 6.6

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	36.0	166	185	226	201	161	127	76	37	18	13	14
Base Flow (Q_b)	10.4	34	62	62	62	62	62	36	21	12	7	7
Q_s - Q_b	25.6	132	123	164	39	99	65	40	16	6	6	7
Estimate of Present Consumption	5	5	5	5	5	5	5	7	7	9	9	6
Proposed flow available for consumptive use	20.6	127	118	159	34	94	60	33	9			1

Period of Record: 1944, 1957-60

Addendum 10/76

DESCRIPTION: Newaukum River near Chehalis
DATE: May 1975

USGS GAGE: 12-0250
RIVER MILE: 4.1

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	231	768	1056	1127	1075	768	543	276	187	113	78	80
Base Flow (Q_b)	54	150	250	250	250	250	250	160	90	52	35	35
Q_s - Q_b	177	618	806	877	825	518	293	116	97	61	43	45
Estimate of Present Consumption	5	5	5	5	5	5	5	8	17	24	18	8
Proposed flow available for consumptive use	172	613	801	872	820	513	288	108	80	37	25	37

Period of Record: 1930-1970

DESCRIPTION: Salzer Creek
DATE: July 1975

USGS GAGE: 12-0253.00
RIVER MILE: 3.8

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	8.6	2.5	80	98	51	40	24	6.7	1.7	.68	.047	.39
Base Flow (Q_b)	.40	3.9	11	11	11	11	11	2.8	.7	0.20	.05	.05
Q_s - Q_b	8.2	21.1	69	87	40	29	13	3.9	1.0	0.48	-.03	.34
Estimate of Present Consumption	0	0	0	0	0	0	0	0.04	0.2	0.4	.2	.06
Proposed flow available for consumptive use	8.2	21.1	69	87	40	29	13	3.86	.8	0.08	-.17	.28

Period of Record: 1968-1971

DESCRIPTION: Skookumchuck River above Hanaford Cr. USGS GAGE: 12-0264
DATE: May 1975 RIVER MILE: 6.4

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	125	530	680	770	760	560	400	205	110	60	40	47
Base Flow (Q_b)	35	96	160	160	160	160	160	130	83	54	35	35
Q_s - Q_b	90	434	520	610	600	400	240	75	27	6	5	12
Estimate of Present Consumption	1	318*	59*	59*	59*	58*	1	3	8	12	9	3
Proposed flow available for consumptive use	89	116	461	551	541	342	239	72	19	-6	-4	9

Period of Record: 1967-1974

*Annual Recharge of Skookumchuck Reservoir

DESCRIPTION: Chehalis River at Grand Mound
DATE: May 1975

USGS GAGE: 12-0275
RIVER MILE: 59.9

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	1000	3847	6211	6523	6147	4501	2889	1359	787	383	252	310
Base Flow (Q_b)	250	760	1300	1300	1300	1300	1300	780	460	275	165	165
Q_s - Q_b	750	3087	4911	5223	4847	3201	1589	579	327	108	87	145
Estimate of Present Consumption	9	327	67	67	67	66	9	23	57	90	72	31
Proposed flow available for consumptive use	741	2760	4844	5156	4780	3135	1580	556	270	18	15	114

Period of Record: 1930-1970

DESCRIPTION: Black River
DATE: July 1975

USGS GAGE: 12-0290
RIVER MILE: 17.2

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	52	166	319	303	376	244	151	94	44	21	14	17
Base Flow (Q_b)	11	49	100	100	100	100	100	57	32	18	10	10
Q_s - Q_b	41	117	219	203	276	144	51	37	12	3	4	7
Estimate of Present Consumption	0	0	0	0	0	0	0	2	3	6	5	2
Proposed flow available for consumptive use	41	117	219	203	276	144	51	35	9	-3	-1	5

Period of Record: 1945-1949

DESCRIPTION: Black River
DATE: June 1975

USGS GAGE: 12-0292
RIVER MILE: 4.1

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	125	410	790	770	950	670	370	220	125	88	73	73
Base Flow (Q_b)	70	140	200	200	200	200	200	145	104	75	66	66
Q_s - Q_b	55	270	590	570	750	470	170	75	21	23	7	7
Estimate of Present Consumption	0	0	0	0	0	0	0	2	8	14	9	2
Proposed flow available for consumptive use	55	270	590	570	750	470	170	73	13	9	-2	5

Period of Record: 1945-1949; Correlated from gage 12-02090, Black River.

DESCRIPTION: Cedar Creek
DATE: October 1976

USGS GAGE: 12-0305
RIVER MILE: 1.1

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	63	239	324	351	316	237	159	76	37	23	16	21
Base Flow (Q_b)	17	52	90	90	90	90	90	54	31	19	11	11
Q_s - Q_b	46	187	234	241	226	147	59	22	6	4	5	10
Estimate of Present Consumption	0	0	0	0	0	0	0	0	1	2	1	0
Proposed flow available for consumptive use	46	187	234	241	226	147	59	22	5	2	4	10

Correlated from 12-0309 and 12-0300.00

Addendum 10/76

DESCRIPTION: Chehalis at Porter
DATE: May 1975

USGS GAGE: 12-0310
RIVER MILE: 33.3

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	1441	5431	8510	10238	8724	6554	4492	2168	1186	642	448	506
Base Flow (Q_b)	400	1380	2500	2500	2500	2500	2500	1420	800	460	260	260
Q_s - Q_b	1041	4051	6010	7738	6224	4054	1992	748	386	192	188	246
Estimate of Present Consumption	9	327	67	67	67	66	9	23	80	129	89	27
Proposed flow available for consumptive use	1032	3724	5943	7671	6157	3988	1983	725	306	63	99	219

Period of Record: 1952-1972

DESCRIPTION: Cloquallum Creek at Elma
DATE: May 1975

USGS GAGE: 12-0325
RIVER MILE: 1.9

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	133	386	554	623	573	409	265	143	76	45	36	39
Base Flow (Q_b)	30	88	150	150	150	150	150	92	55	34	24	24
Q_s - Q_b	103	298	404	473	423	259	115	51	21	11	12	15
Estimate of Present Consumption	0	0	0	0	0	0	0	0	2	3	2	2
Proposed flow available for consumptive use	103	298	404	473	423	259	115	51	19	8	10	13

Period of Record: 1929-1973

DESCRIPTION: East Fork Satsop River
DATE: October 1976

USGS GAGE: 12-0342
RIVER MILE: 15.9

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	153	433	678	828	696	561	412	263	170	122	99	94
Base Flow (Q_b)	80	185	280	280	280	280	280	210	152	112	95	80
Q_s - Q_b	73	248	398	548	416	481	132	53	18	10	4	14
Estimate of Present Consumption	0	0	0	0	0	0	0	0	1	1	1	0
Proposed flow available for consumptive use	73	248	398	548	416	481	132	53	17	9	3	14

Period of Record: 1957-60

Addendum 10/76

DESCRIPTION: Decker Creek
DATE: October 1976

USGS GAGE: 12-0343
RIVER MILE: 0.3

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	262	600	871	904	811	623	449	244	143	91	69	90
Base Flow (Q_b)	58	100	130	130	130	130	130	103	81	64	50	50
Q_s - Q_b	204	500	741	774	681	493	319	141	62	27	19	40
Estimate of Present Consumption	0	0	0	0	0	0	0	0	0	0	0	0
Proposed flow available for consumptive use	204	500	741	774	681	493	319	141	62	27	19	40

Period of Record: 1924-42

Addendum 10/76

DESCRIPTION: Middle Fork Satsop River
DATE: October 1976

USGS GAGE: 12-0345
RIVER MILE: 0.4

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	348	905	1,335	1,380	1,243	947	661	306	148	78	53	82
Base Flow (Q_b)	45	145	260	260	260	260	260	160	98	61	38	38
Q_s - Q_b	303	760	1,075	1,120	983	687	401	146	50	17	15	24
Estimate of Present Consumption	0	0	0	0	0	0	0	0	0	0	0	0
Proposed flow available for consumptive use	303	760	1,075	1,120	983	687	401	146	50	50	15	24

Period of Record: 1929-53

Addendum 10/76

DESCRIPTION: Chehalis below Satsop
DATE: July 1975

USGS GAGE: 12-0350.02
RIVER MILE: 20.0

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	3040	9210	13760	16210	13610	10240	7250	3560	1980	1160	870	1040
Base Flow (Q_b)	750	2220	3800	3800	3800	3800	3800	2300	1360	860	550	550
Q_s - Q_b	2290	6990	9960	12410	9810	6440	3450	1260	620	300	320	490
Estimate of Present Consumption	9	327*	67*	67*	67*	67*	9	25	83	135	93	28
Proposed flow available for consumptive use	2281	6663	9893	12343	9743	6373	3441	1235	537	165	227	462

Period of Record: 1953-1970; Correlation with Chehalis River at Porter and Satsop River near Satsop.

DESCRIPTION: Satsop River near Satsop
DATE: May 1975

USGS GAGE: 12-0350
RIVER MILE: 2.3

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	1220	2820	4075	4209	3792	2917	2074	1192	671	427	323	420
Base Flow (Q_b)	300	720	1100	1100	1100	1100	1100	750	500	360	260	260
Q_s - Q_b	920	2100	2975	3109	2692	1817	974	442	171	67	63	160
Estimate of Present Consumption	0	0	0	0	0	0	0	2	3	5	3	2
Proposed flow available for consumptive use	920	2100	2975	3109	2692	1817	974	440	168	62	60	158

Period of Record: March 1929-1974

DESCRIPTION: Wynoochee River above Black Creek
DATE: July 1975

USGS GAGE: 12-0374
RIVER MILE: 5.9

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	985	1874	2561	2459	2301	1648	1358	909	503	290	210	33
Base Flow (Q_b)	230	560	560	560	560	560	560	560	360	230	150	15
Q_s - Q_b	755	1334	2001	1899	1741	1088	798	349	133	60	60	18
Estimate of Present Consumption	110	110	110	110	110	110	110	110	110	110	110	11
Proposed flow available for consumptive use	645	1224	1891	1789	1631	978	678	239	23	-50	-50	7

Period of Record: October 1956 to 1974

DESCRIPTION: Wishkah River
DATE: June 1975

USGS GAGE: 12-0380
RIVER MILE: 16.2

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	340	490	710	620	660	410	350	230	190	100	74	82
Base Flow (Q_b)	60	135	135	135	135	135	135	113	80	57	47	47
Q_s - Q_b	280	355	575	485	525	275	215	117	110	43	27	35
Estimate of Present Consumption	23	23	23	23	23	23	23	24	24	24	24	23
Proposed flow available for consumptive use	267	332	552	462	502	252	192	93	86	19	3	12

Period of Record: 1933-1935; 1942-1973.
Correlated from gage 12.0390.00, Humptulips River

DESCRIPTION: East Fork Hoquiam River
DATE: October 1976

USGS GAGE: 12-0387
RIVER MILE: 7.1

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	60	90	107	104	98	84	70	52	37	29	24	33
Base Flow (Q_b)	25	44	44	44	44	44	44	38	29	22	19	19
Q_s - Q_b	35	46	63	60	54	40	26	14	8	7	5	14
Estimate of Present Consumption	5	5	5	5	5	5	5	5	5	5	5	5
Proposed flow available for consumptive use	30	41	58	55	49	35	21	9	3	2	0	9

Period of Record: 1942

Addendum 10/76

DESCRIPTION: Middle Fork Hoquiam
DATE: October 1976

USGS GAGE: 12-0385.8
RIVER MILE: 1.6

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	48	98	130	125	113	80	63	34	19.0	12.0	9.0	16.0
Base Flow (Q_b)	8.0	27	27	27	27	27	27	21	12.2	7.4	5.6	5.6
Q_s - Q_b	40	71	103	98	86	53	36	13	6.8	4.6	3.4	10.4
Estimate of Present Consumption	0	0	0	0	0	0	0	0	0	0	0	0
Proposed flow available for consumptive use	40	71	103	98	86	53	36	13	6.8	4.6	3.4	10.4

Correlated data from 12-0390

Period of Record: 1933-35, 1942-70

Addendum 10/76

DESCRIPTION: West Fork Hoquiam
DATE: July 1975

USGS GAGE: 12-0385
RIVER MILE: 9.4

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	60	119	170	151	159	99	84	55	50	16	12	13
Base Flow (Q_b)	11	32	32	32	32	32	32	26	16	10	8	8
Q_s - Q_b	49	87	138	119	127	67	52	39	34	6	4	5
Estimate of Present Consumption	-------	---------	---------	---------	---------	Insufficient Data		---------	---------	---------	---------	---------
Proposed flow available for consumptive use	-------	---------	---------	---------	---------	Insufficient Data		---------	---------	--------	---------	---------

Period of Record: 1933-1935; 1942-1973.
Correlated from gage 12.0390.00, Humptulips River.

DESCRIPTION: Humptulips River
DATE: June 1975

USGS GAGE: 12-0390
RIVER MILE: 24.8

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	1144	2088	2653	2561	2423	1720	1327	814	450	292	240	388
Base Flow (Q_b)	250	600	600	600	600	600	600	500	325	215	170	170
Q_s - Q_b	894	1488	2053	1961	1823	1120	727	314	135	77	70	218
Estimate of Present Consumption	8	8	8	8	8	8	8	8	8	9	8	8
Proposed flow available for consumptive use	886	1480	2045	1953	1815	1112	719	306	127	68	62	210

Period of Record: 1933-1935; 1942-1973

DESCRIPTION: Elk River
DATE: October 1976

USGS GAGE: 12-0174
RIVER MILE: 3.0

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	46	85	170	230	158	109	72	43	36	23	18	25
Base Flow (Q_b)	25	40	50	50	50	50	50	37	26	19	16	16
Q_s - Q_b	21	45	120	180	108	59	22	6	10	4	2	9
Estimate of Present Consumption	0	0	0	0	0	0	0	0	0	0	0	0
Proposed flow available for consumptive use	21	45	120	180	108	59	22	6	10	4	2	9

Correlated from 12-0151

Period of Record: 1964-70

Addendum 10/76

DESCRIPTION: Johns River
DATE: October 1976

USGS GAGE: 12-0175
RIVER MILE: 6.0

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	79	213	330	328	282	223	147	72	45	29	22	29
Base Flow (Q_b)	24	49	70	70	70	70	70	42	29	21	17	17
Q_s - Q_b	55	164	260	258	212	153	77	30	16	8	5	12
Estimate of Present Consumption	0	0	0	0	0	0	0	0	0	0	0	0
Proposed flow available for consumptive use	55	164	260	258	212	153	77	30	16	8	5	12

Period of Record: 1942-43

Addendum 10/76

DESCRIPTION: Newskan Creek
DATE: October 1976

USGS GAGE: 12-0180
RIVER MILE: 3.5

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	25	71	110	109	94	74	49	230	13	6	4	7
Base Flow (Q_b)	4	17	17	17	17	17	17	10.7	6.5	4.1	2.5	2.5
Q_s - Q_b	21	54	93	92	77	57	32	12.3	6.5	1.9	1.5	4.5
Estimate of Present Consumption	0	0	0	0	0	0	0	0	0	0	0	0
Proposed flow available for consumptive use	21	54	93	92	77	57	32	12.3	6.5	1.9	1.5	4.5

Period of Record: 1945-49

Addendum 10/76

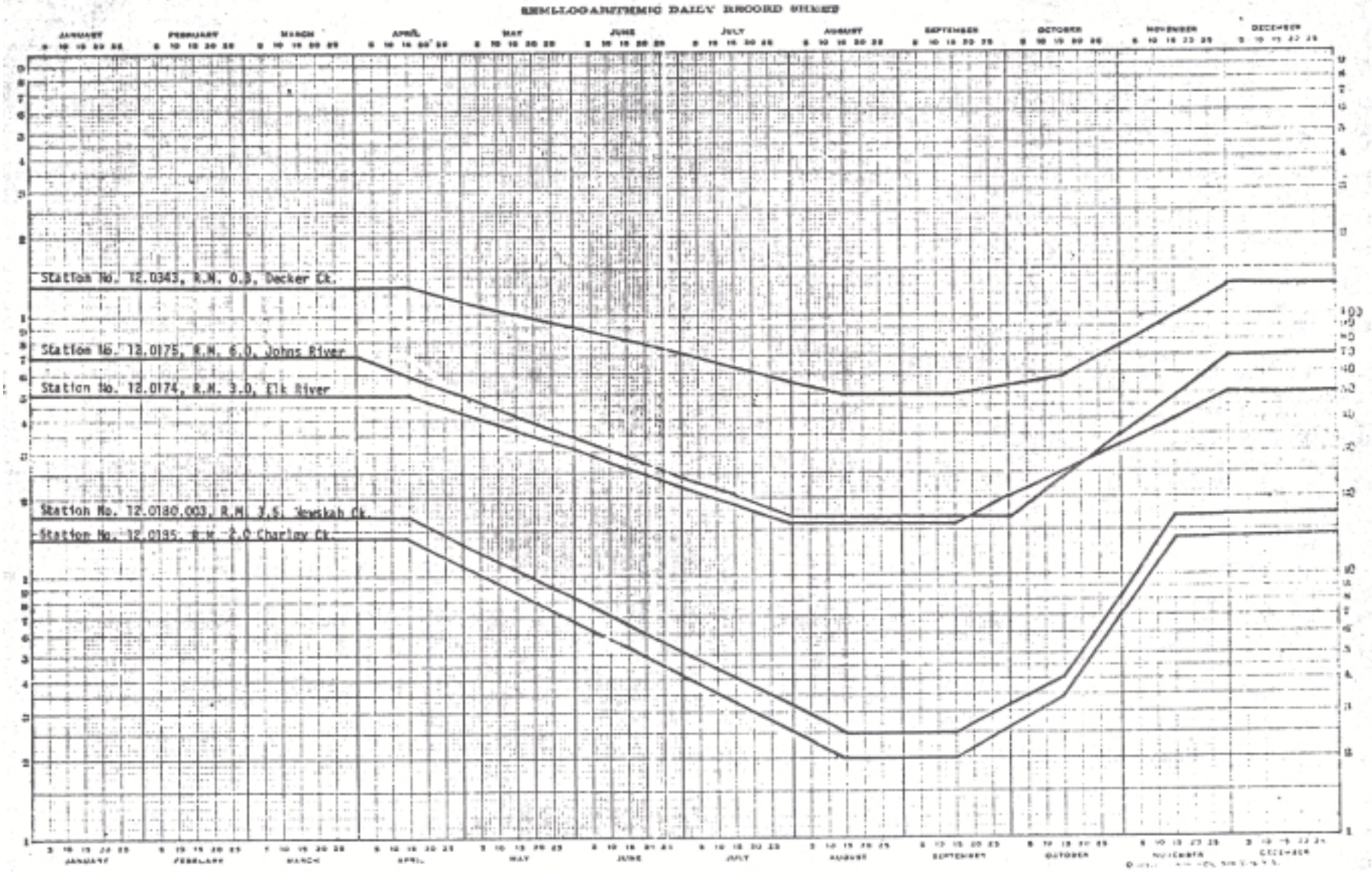
DESCRIPTION: Charley Creek
DATE: October 1976

USGS GAGE: 12-0185
RIVER MILE: 2.0

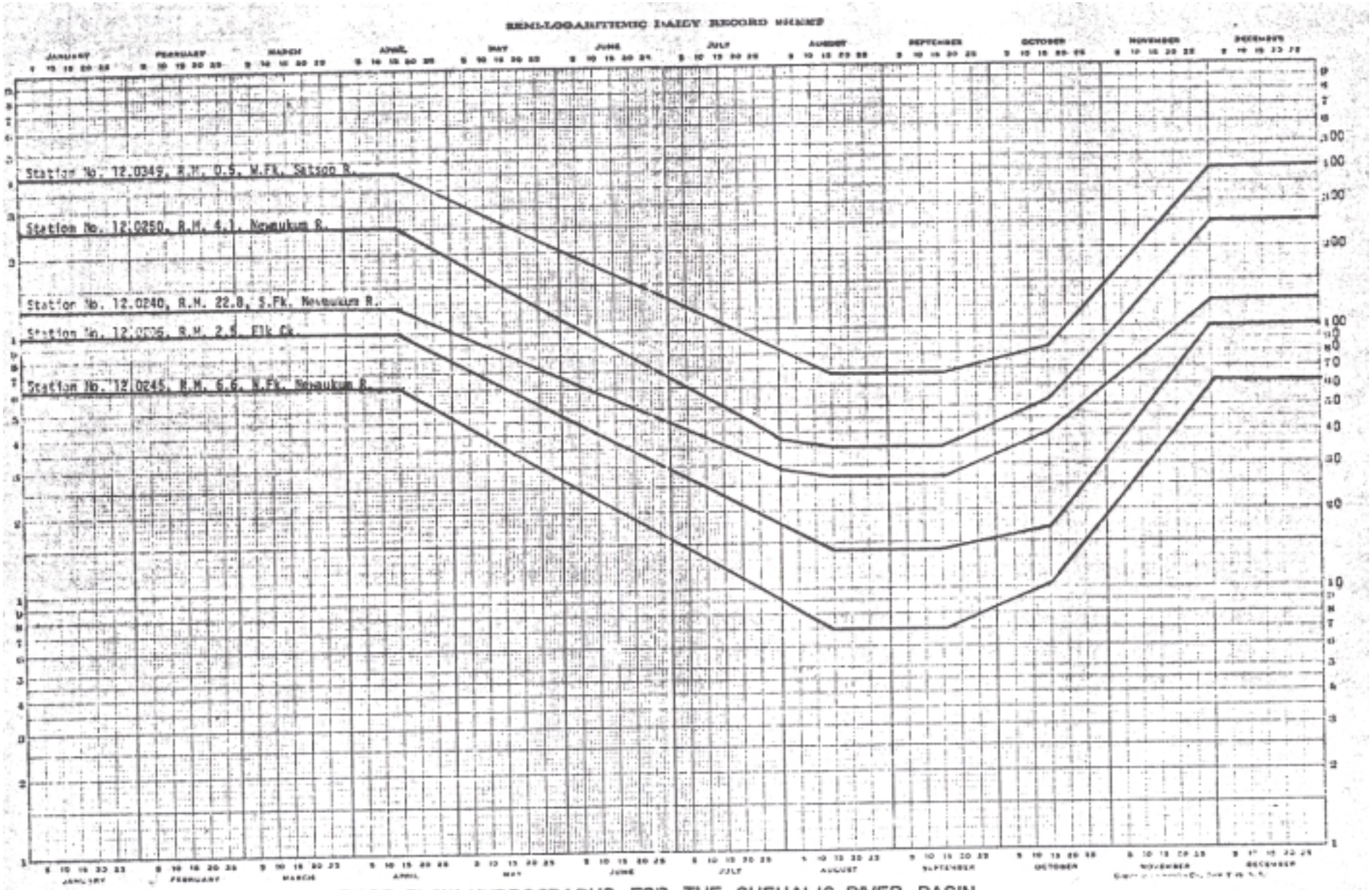
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Stream Flow Mean Monthly (Q_s)	14	36	52	52	46	38	26	14.0	8.0	5.0	3	5
Base Flow (Q_b)	3.5	14	14	14	14	14	14	8.6	5.4	3.3	2	2
Q_s - Q_b	10.5	22	38	38	32	24	12	5.4	2.6	1.7	1	3
Estimate of Present Consumption	0	0	0	0	0	0	0	0	0	0	0	0
Proposed flow available for consumptive use	10.5	22	38	38	32	24	12	5.4	2.6	1.7	1	3

Period of Record: 1945-49

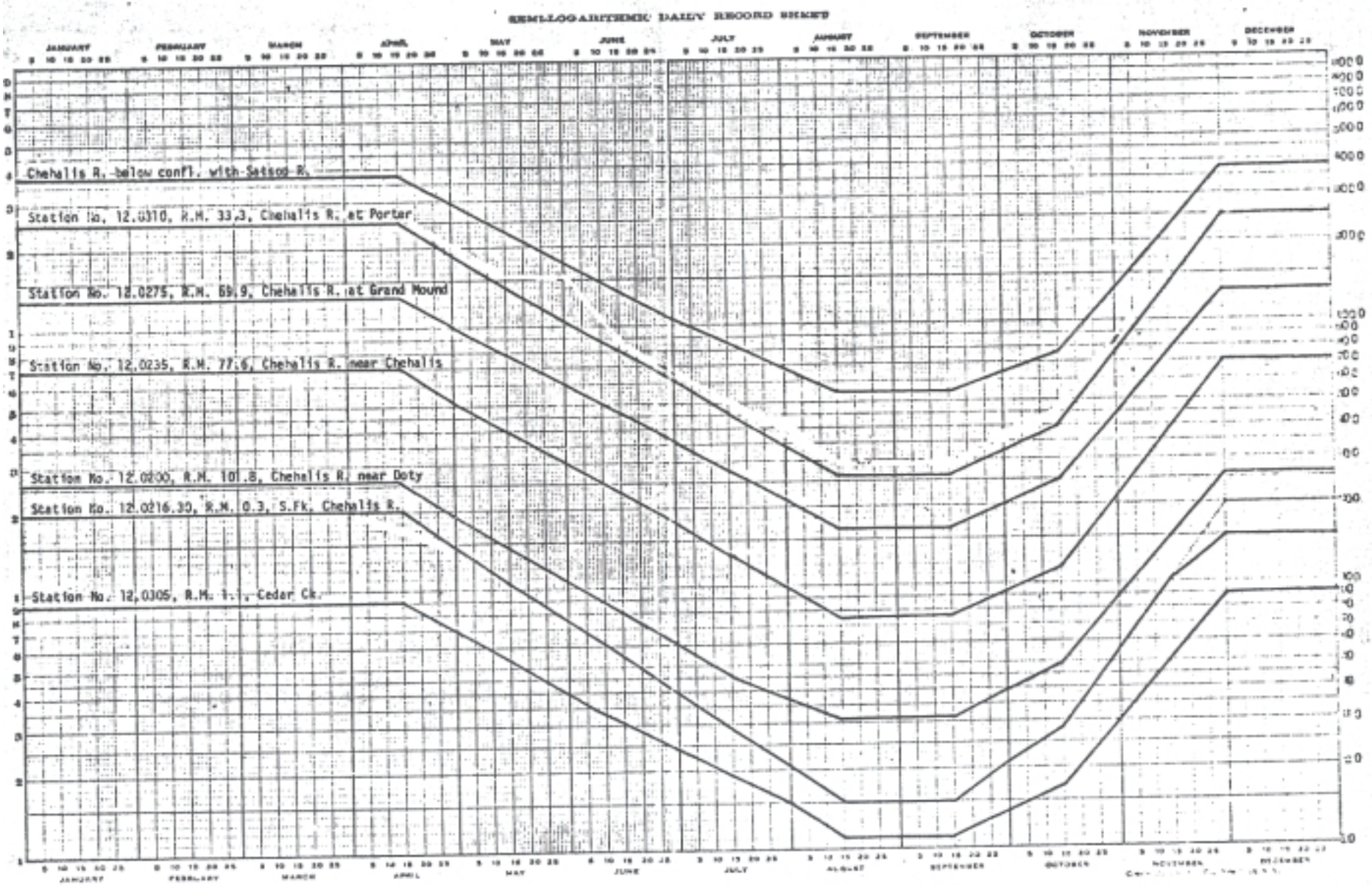
Addendum 10/76



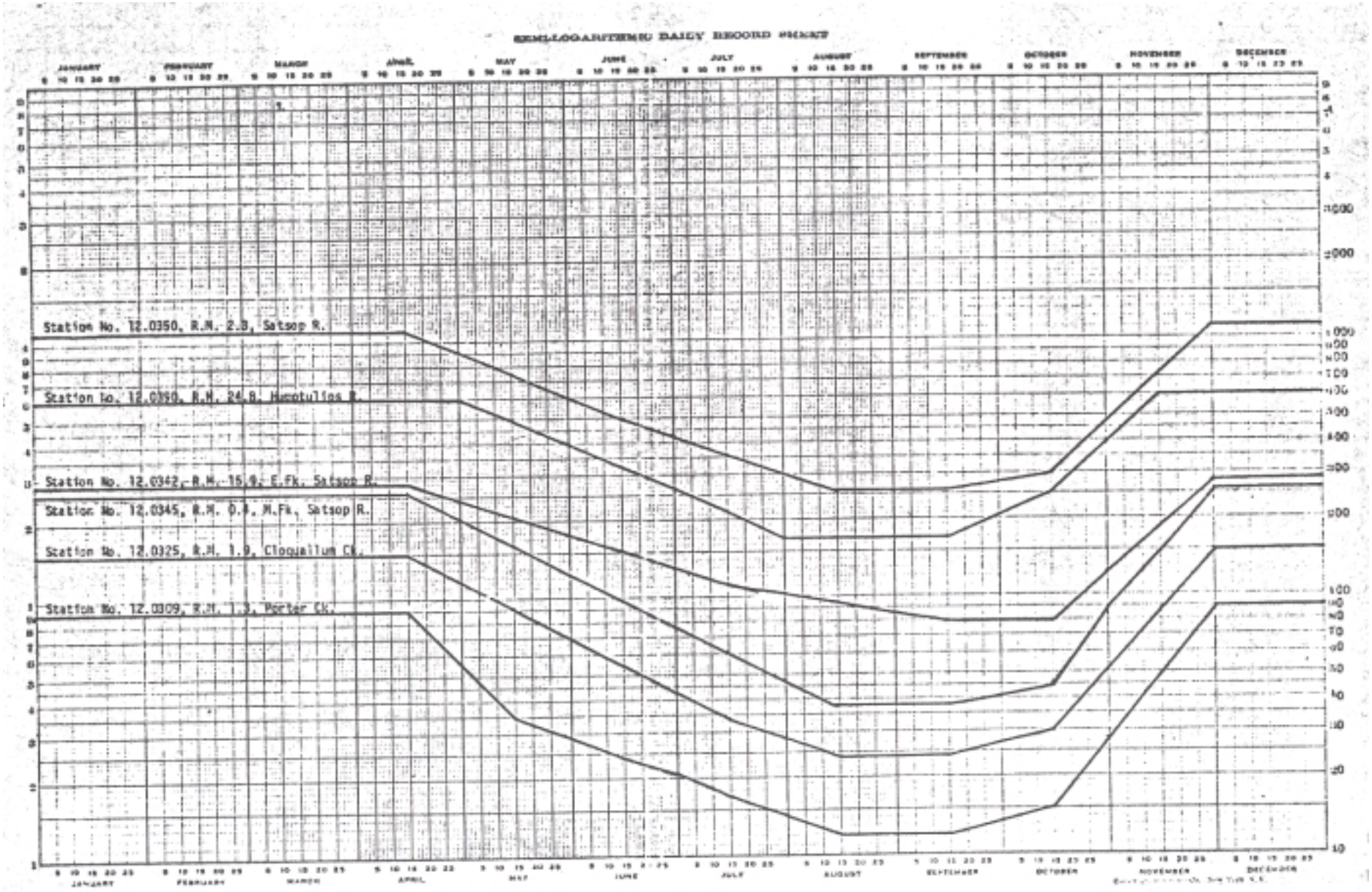
BASE FLOW HYDROGRAPHS FOR THE CHEHALIS RIVER BASIN



BASE FLOW HYDROGRAPHS FOR THE CHEHALIS RIVER BASIN



BASE FLOW HYDROGRAPHS FOR THE CHEHALIS RIVER BASIN



BASE FLOW HYDROGRAPHS FOR THE CHEHALIS RIVER BASIN

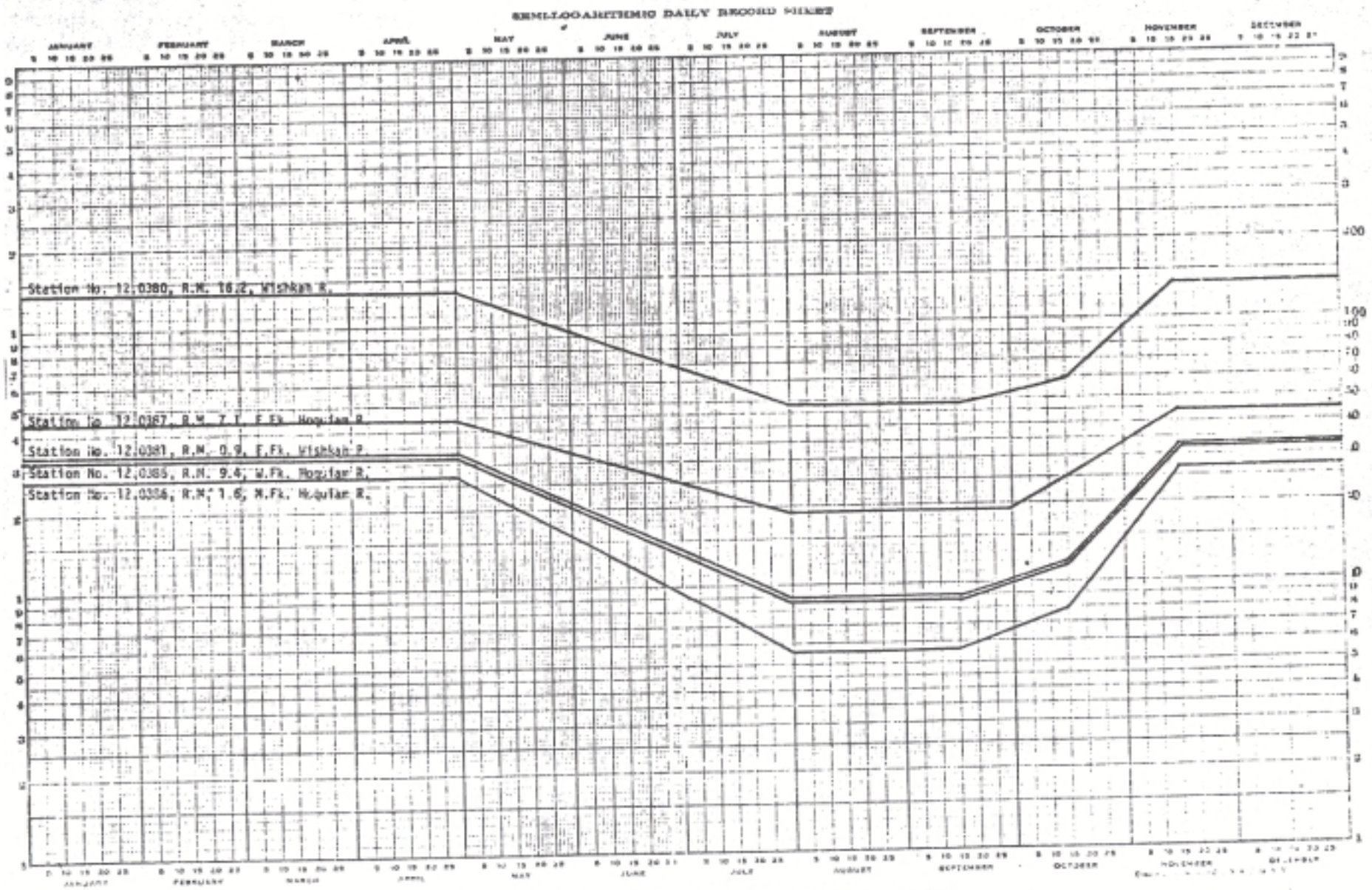


Figure BASE FLOW HYDROGRAPHS FOR THE CHEHALIS RIVER BASIN

TRANSMITTAL OF RULES ADOPTED

FROM: DEPARTMENT OF ECOLOGY
(Name of Agency)

TO: CODE REVISER
LEGISLATIVE BLDG. (Southwest Corner, Ground Floor)
OLYMPIA 98504

The enclosed rules: Permanent rules [X] , being Order No. 75-31
Emergency rules [ ]

relating to (Name of rules or description of subject matter)

a water resource management program for the Chehalis River Basin consisting, among others, of elements pertaining to criteria for use in making decisions on future uses of water, the establishment of flows to protect instream values, the closure of streams from further appropriation, and the retention of lakes in their natural condition; creating chapter 173-522 WAC.

(ALTERNATIVE A. Use only for adoption of permanent rules)

pursuant to Notice No. 5622 ① filed with the code reviser on 12/11/75 and 2/20/76 (date) ② 5740 , were regularly adopted as permanent rules of this agency at Dept. of Ecology Lacey, WA 98504 (place) on 3/10/76 (date) and are herewith filed in the office of the code reviser pursuant to chapter 34.04 RCW. The effective date of such rules shall be _____. ③

(ALTERNATIVE B. Use only for adoption of emergency rules)

pursuant to its finding in the attached administrative order, that the immediate adoption of these rules is necessary for the preservation of the public health, safety, or general welfare and that observance of the requirements of notice and opportunity to present views on the proposed action would be contrary to the public interest, were regularly adopted as emergency rules of this agency at _____ (place) on _____ (date) and are herewith filed in the office of the code reviser pursuant to chapter 34.04 RCW.

The undersigned hereby certifies that the requirements of chapter 34.04 RCW and of the Open Public Meetings Act of 1971, chapter 42.30 RCW have been fulfilled.

Dated this 10th day of March 19 76

STATE OF WASHINGTON
FILED
MAR 10 1976
CODE REVISER'S OFFICE
DOCKET # FILE #

DEPARTMENT OF ECOLOGY
(AGENCY)

By Wesley A. Hunter
WESLEY A. HUNTER
Deputy Director
Title

①Notice number as appears on the copy of notice returned to you by reviser's office(if proceedings were continued,use no. of last notice)
②Stamped date as appears on the copy of notice returned to you by reviser's office(if proceedings were continued, use date of last notice)
③Unless a later date is specified in this order or is prescribed in another statute, rules are effective 30 days after filing: RCW 34.04.040. Leave this space blank except in such special cases.
[Order 9, filed 9/25/74, eff. 10/25/74] [Form CR-2: Rev. 9/21/74]

WATER RESOURCES PROGRAM
IN THE CHEHALIS RIVER BASIN, WRIA-22 and 23

Chapter 173-522 WAC

WAC 173-522-010 GENERAL PROVISION. These rules, including any subsequent additions and amendments, apply to waters within and contributing to the Chehalis River Basin, WRIA-22 and 23 (see WAC 173-500-040). Chapter 173-500 WAC, the general rules of the Department of Ecology for the implementation of the comprehensive water resources program, applies to this chapter 173-522 WAC.

WAC 173-522-020 ESTABLISHMENT OF BASE FLOWS. (1) Base flows are established for stream management units with monitoring to take place at certain control stations as follows:

STREAM MANAGEMENT UNIT INFORMATION

Control Station No. Stream Management Unit Name	Control Station by River Mile and Section, Township and Range	Affected Stream Reach Including Tributaries
12.0200.00 Chehalis River Conf. w/Elk Creek	101.8 14-13-5W	From confluence with Elk Creek to headwaters except Elk Cr.
12.0205.00 Elk Creek	2.5 18-13-5W	From confluence with Chehalis River to headwaters.
12.0216.30 So. Fork Chehalis R.	0.3 24-13-4W	From mouth to headwaters.
12.0235.00 Chehalis River	77.6 2-13-3w	From confluence with Newaukum River to confluence with Elk Cr., excluding Elk Creek, and Newaukum Rivers.
12.0240.00 S. Fork Newaukum R.	22.8 28-13-1E	From confluence with Lost Creek to headwaters, excluding Lost Creek.
12.0245.00 N. Fork Newaukum River	6.6 35-14-1W	From mouth to headwaters.
12.0250.00 Newaukum River	4.1 9-13-2W	From mouth to confluence with Lost Cr. on S. Fork Newaukum River, excluding N. Fork Newaukum River.
12.0253.00 Salzer Creek	3.8 22-14-2W	From mouth to headwaters.
12-0264.00 Skookumchuck River	6.4 12-15-2W	From mouth to headwaters.
12.0275.00 Chehalis River at Grand Mound	59.9 22-15-3W	From confluence with Newaukum River to confluence with Prairie Creek.

12.0292.00 Black River	4.1 33-16-4W	From mouth to headwaters.
12.0305.00 Cedar Creek	1.1 14-16-5W	From mouth to headwaters.
12.0309.00 Porter Creek	1.3 22-17-5W	From mouth to headwaters.
12.0310.00 Chehalis River at Porter	33.3 28-17-5W	From confluence with Prairie Creek near Grand Mound to confluence with Porter Creek including Prairie Creek.
12.0325.00 Cloquallum Creek	1.9 36-18-6W	From mouth to headwaters.
12.0342.00 East Fk. Satsop R.	15.9 15-19-6W	From confluence with Dry Run Cr. to headwaters excluding Dry Run Cr.
12.0343.00 Decker Creek	0.3 31-19-6W	From mouth to headwaters.
12.0345.00 Middle Fk. Satsop R.	0.4 36-19-7W	From mouth to headwaters.
12.0350.00 Satsop River	2.3 36-18-7W	From mouth to confl. with Dry Run Cr. on East Fk. Satsop R.
12.0350.02 Chehalis R. below confl. w/Satsop R.	20.0 7-17-6W	From confluence with Porter Ck. to just below confl. with Satsop River.
12.0374.00 Wynoochee River	5.9 27-18-8W	From mouth to headwaters.
12.0380.00 Wishkah River	16.2 22-19-9W	From influence of mean annual high tide at low base flow levels to headwaters. Excluding E. Fk. Wishkah River.
12.0382.90 E. Fk. Wishkah R.	0.9 36.19-9W	From mouth to headwaters.
12.0385.00 W. Fk. Hoquiam River	9.4 14-18-10W	From mouth to headwaters.
12.0385.80 Middle Fk. Hoquiam R.	1.6 4-18-10W	From mouth to headwaters.
12.0386.60 East Fork Hoquiam	7.1 8-18-9W	From mouth to headwaters.

12.0390.00 Humptulips River	24.8 17-20-10W	From influence of mean annual high tide at low base flow levels to headwaters.
12.0174.00 Elk River	3.0 3-16-11W	From influence of mean annual high tide at low base flow levels to headwaters.
12.0175.00 Johns River	6.0 21-16-10W	From influence of mean annual high tide at low base flow levels to headwaters.
12.0180.00 Newskah Creek	3.5 32-17-9W	From influence of mean annual high tide at low base flow levels to headwaters.
12.0185.00 Charley Creek	2.0 21-17-9W	From influence of mean annual high tide at low base flow levels to headwaters.

(2) Base flows established for the stream management units in WAC 173-522-020(1) are as follows:

BASE FLOWS IN THE CHEHALIS RIVER BASIN
(in Cubic Feet per Second)

Month	Day	12.0200.00 Chehalis R. nr. Elk Cr.	12.0205.00 Elk Cr.	12.0216.30 So. Fk. Chehalis R.	12.0235.00 Chehalis R.
Jan.	1	260	100	200	700
	15	260	100	200	700
Feb.	1	260	100	200	700
	15	260	100	200	700
Mar.	1	260	100	200	700
	15	260	100	200	700
Apr.	1	260	100	200	700
	15	260	100	200	700
May	1	195	76	145	525
	15	146	57	105	400
June	1	108	43	75	300
	15	82	32	55	230
July	1	62	25	40	175
	15	46	19	29	130
Aug.	1	37	16	21	98
	15	31	14	15	75
Sep.	1	31	14	15	75
	15	31	14	15	75
Oct.	1	39	15	21	92
	15	49	17	28	115
Nov.	1	88	31	56	215
	15	150	56	105	390
Dec.	1	260	100	200	700
	15	260	100	200	700

Month	Day	12.0240.00 Newaukum R. S. Fork	12.0245.00 Newaukum R. N. Fork	12.0250.00 Newaukum R.	12.0253.00 Salzer Cr.
Jan.	1	125	62	250	11
	15	125	62	250	11
Feb.	1	125	62	250	11
	15	125	62	250	11
Mar.	1	125	62	250	11
	15	125	62	250	11
Apr.	1	125	62	250	11
	15	125	62	250	11
May	1	110	47	210	5.8
	15	88	36	160	2.8
June	1	70	27	118	1.4
	15	56	21	90	.73
July	1	45	16	68	.38
	15	36	12	52	.20
Aug.	1	29	9	38	.10
	15	27	7	35	.05
Sep.	1	27	7	35	.05
	15	27	7	35	.05
Oct.	1	33	8.4	43	.14
	15	40	10	54	.40
Nov.	1	58	19	91	1.35
	15	85	34	150	3.9
Dec.	1	125	62	250	11
	15	125	62	250	11

Month	Day	12.0264.00 Skookumchuck River	12.0275.00 Chehalis R. at Grand Mound	12.0292.00 Black R.	12.0305.00 Cedar Cr.
Jan.	1	160	1300	200	90
	15	160	1300	200	90
Feb.	1	160	1300	200	90
	15	160	1300	200	90
Mar.	1	160	1300	200	90
	15	160	1300	200	90
Apr.	1	160	1300	200	90
	15	160	1300	200	90
May	1	160	1000	170	70
	15	130	780	145	54
June	1	103	600	120	40
	15	83	460	104	31
July	1	67	355	88	24
	15	54	275	75	19
Aug.	1	43	210	70	14
	15	35	165	66	11
Sep.	1	35	165	66	11
	15	35	165	66	11
Oct.	1	35	200	68	13.8
	15	35	250	70	17
Nov.	1	59	440	100	30
	15	96	760	140	52
Dec.	1	160	1300	200	90
	15	160	1300	200	90

Month	Day	12.0309.00 Porter Cr.	12.0310.00 Chehalis R. at Porter	12.0325.00 Cloquallum Creek	12.0342.00 Satsop R. E. Fork
Jan.	1	90	2500	150	280
	15	90	2500	150	280
Feb.	1	90	2500	150	280
	15	90	2500	150	280
Mar.	1	90	2500	150	280
	15	90	2500	150	280
Apr.	1	90	2500	150	280
	15	90	2500	150	280
May	1	56	1900	118	240
	15	35	1420	92	210
June	1	29	1060	70	175
	15	24	800	55	152
July	1	21	610	43	130
	15	17	460	34	112
Aug.	1	14.2	340	29	104
	15	12	260	24	95
Sep.	1	12	260	24	86
	15	12	260	24	80
Oct.	1	13.3	320	27	80
	15	15	400	30	80
Nov.	1	28	760	52	125
	15	50	1380	88	185
Dec.	1	90	2500	150	280
	15	90	2500	150	280

Month	Day	12.0343.00 Decker Cr.	12.0345.00 Satsop R. M. Fork	12.0350.00 Satsop R.	12.0350.02 Chehalis R. nr. Satsop
Jan.	1	130	260	1100	3800
	15	130	260	1100	3800
Feb.	1	130	260	1100	3800
	15	130	260	1100	3800
Mar.	1	130	260	1100	3800
	15	130	260	1100	3800
Apr.	1	130	260	1100	3800
	15	130	260	1100	3800
May	1	115	203	910	2910
	15	103	160	750	2300
June	1	91	125	600	1750
	15	81	98	500	1360
July	1	72	78	425	1085
	15	64	61	360	860
Aug.	1	56	48	300	680
	15	50	38	260	550
Sep.	1	50	38	260	550
	15	50	38	260	550
Oct.	1	54	41	280	640
	15	58	45	300	750
Nov.	1	77	83	475	1305
	15	100	145	720	2220
Dec.	1	130	260	1100	3800
	15	130	260	1100	3800

Month	Day	12-0374.00 Wynoochee River	12-0380.00 Wishkah R.	12-0382.90 Wishkah R. E. Fk.	12-0385.00 Hoquiam R. W. Fk.
Jan.	1	560	135	33	32
	15	560	135	33	32
Feb.	1	560	135	33	32
	15	560	135	33	32
Mar.	1	560	135	33	32
	15	560	135	33	32
Apr.	1	560	135	33	32
	15	560	135	33	32
May	1	560	135	33	32
	15	560	113	27	26
June	1	450	95	21	20
	15	360	80	17	16
July	1	290	68	14	12.8
	15	230	57	11.3	10
Aug.	1	185	47	9	8
	15	150	47	9	8
Sep.	1	150	47	9	8
	15	150	47	9	8
Oct.	1	150	53	10.4	9.4
	15	230	60	12	11
Nov.	1	360	91	20	19
	15	560	135	33	32
Dec.	1	560	135	33	32
	15	560	135	33	32

Month	Day	12-0385.80 Hoquiam R. M. Fk.	12-0386.60 Hoquiam R. E. Fk.	12-0390.00 Humptulips River	12-0174.00 Elk River
Jan.	1	27	44	600	50
	15	27	44	600	50
Feb.	1	27	44	600	50
	15	27	44	600	50
Mar.	1	27	44	600	50
	15	27	44	600	50
Apr.	1	27	44	600	50
	15	27	44	600	50
May	1	27	44	600	43
	15	21	38	500	37
June	1	16	33	400	31
	15	12.2	29	325	26
July	1	9.5	25	265	22
	15	7.4	22	215	19
Aug.	1	5.6	19	170	16
	15	5.6	19	170	16
Sep.	1	5.6	19	170	16
	15	5.6	19	170	16
Oct.	1	6.7	19	205	20
	15	8.0	25	250	25
Nov.	1	15	34	390	32
	15	27	44	600	40
Dec.	1	27	44	600	50
	15	27	44	600	50

Base flows continued

Month	Day	12-0175.00 Johns River	12-0180.00 Newskah Creek	12-10185.00 Charley Creek
Jan.	1	70	17	14
	15	70	17	14
Feb.	1	70	17	14
	15	70	17	14
Mar.	1	70	17	14
	15	70	17	14
Apr.	1	70	17	14
	15	50	17	14
May	1	50	13.4	11
	15	42	10.7	8.6
June	1	35	8.3	6.7
	15	29	6.5	5.4
July	1	24	5.2	4.2
	15	21	4.1	3.3
Aug.	1	17	3.2	2.5
	15	17	2.5	2
Sep.	1	17	2.5	2
	15	17	2.5	2
Oct.	1	17	3.2	2.6
	15	24	4	3.5
Nov.	1	35	8.4	7.1
	15	49	17	14
Dec.	1	70	17	14
	15	70	17	14

(3) Base flow hydrographs, Appendix 1, pages 19-23 in the document entitled “Water Resources Management Program in the Chehalis River Basin” dated November, 1975 shall be used for definition of base flows on those days not specifically identified in WAC 173-522-020(2).

(4) All rights hereafter established shall be expressly subject to the base flows established in sections WAC 173-522-020(1) through (3).

(5) At such time as the Department of Fisheries and/or Game provide specific information substantiating the need for flows higher than the flows set forth in WAC 173-522-020(2), the Department of Ecology agrees to proceed with setting minimum flows as provided under RCW 90.22 within one year from the time of said request, unless agreement to another time frame is reached between parties.

WAC 173-522-030 FUTURE ALLOCATION OF SURFACE WATER FOR BENEFICIAL USES. The department has determined that there are public waters available, subject to base flow, for allocation to beneficial uses from all streams within the Chehalis Basin; except for those streams and times declared closed in WAC 173-522-050. The department shall maintain a current tabulation of the amount of water that is available for appropriation at each stream management unit specified under WAC 173-522-020(1).

Page 93 missing

Stearns Creek	4-28-53	" "
Wildcat Creek	10-28-52	" "
Williams Creek	5-6-52	" "
Wynoochee River	3-9-62	" "
Black River	Date of Adoption	1 July – 30 Sept.
Skookumchuck River	" "	" "
S. Fk. Chehalis River	" "	" "
Salzer Creek	" "	1 June – 30 Sept.

NOTE: Affected reach is from mouth to headwaters and includes all tributaries in the contributing drainage area unless specifically excluded.

WAC 173-522-060 EFFECT ON PRIOR RIGHTS. Nothing in this chapter shall be construed to lessen, enlarge, or modify the existing rights acquired by appropriation or otherwise.