10-8-1991

Ex. 280-US-421

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KILOMETERS 1 0 1 2 3 4

ODFW AQUATIC INVENTORY PROJECT

STREAM REPORT

STREAM: Sprague River

BASIN: Klamath

DATES: October 2-8, 1991

CREW: Ron Lefler, Jeffrey Dambacher, David Lowe

STREAM ORDER:___ BASIN AREA:_____ NUMBER OF TRIBUTARIES:

USGS MAPS:

GENERAL DESCRIPTION: The Sprague River survey began at confluence with Williams River in the town of Chiloquin, and continued 54,590 meters to the upstream edge of USFS lands. Dominant land uses were rural residential, mature timber, and grazing. The stream was dominated by glide habitat (84%), and silt and organic substrate (56%). Large woody material contributed very little cover in all reaches surveyed.

REACH DESCRIPTIONS:

Reach 1: (T34S-R7E-NW3) Length 1,315 meters. This short reach consisted of nine habitat units. It started at the confluence with the Williams River, was bordered by the town of Chiloquin, and ended at an irrigation diversion dam equipped with a fish ladder. The average unit gradient is 0.5% and the valley width index is 20 (VWI is the ratio of the width of the active channel to the width of the valley floor). The channel was 100% constrained by alternating terraces and hillslopes. It was dominated by scour pool (54%), and riffle (43%) habitat. Stream substrate was dominated by cobble (27%), silt and organic (25%), boulder (24%), and bedrock (18%).

Reach 2: (T34S-R7E-11W) Length 5,960 meters. This reach started at a diversion dam that createed a 1200 meter long pool. This reach was bordered by moderately sloped hillsides, had an average unit gradient of 0.3%, and a VWI of 3.4. The dominant habitat type was glide (62%), though the single dammed pool comprised 30 percent of the wetted area. The dominant substrate was gravel (42%), cobble (27%), and silt and organics (19%).

Reach 3: (T34S-7E-36NW) Length 1,385 meters. This was the most steep and hydraulically rough reach surveyed. It had an average unit gradient of 1.3 percent, a VWI of 2.5, and was bordered by moderately sloped hillsides. Stream habitat was dominated by riffles (69%) and scour pools (24%), and the dominant substrates were boulder (37%) and cobble (27%) sized sediment.

Reach 4: (T34S-8E-21NE) Length 32,235 meters. This was the longest reach surveyed. The stream channel in this reach was unconstrained, had multiple channels, and meandered greatly within a expansive floodplain. The average unit gradient was less than 0.1 percent and the VWI was 7.5. The flood plain was used for intensive cattle grazing. Forty-two percent of the length of stream banks were classed as actively eroding.

Reach 5: (T35S-9E-10SE) Length 13,695 meters. This reach had a more narrow floodplain, with a VWI of 3.4. Half (51%) the stream length of this reach was unconstrained with multiple channels, the remainder was in a single channel, the majority of which (41%) was intermittently constrained between gently sloping hillsides. The average unit gradient was less than 0.1 percent. Stream habitat was dominated by glides (99%), and silt and organic substrate (80%). Dominant land use was rural residential, and forty-five percent of the stream banks were classed as actively eroding.

CONCERNS/RECOMMENDATIONS:

COMMENTS:

This habitat survey was based upon methods developed for small mountain streams, and does not necessarily describe important habitat condition in large low gradient rivers. Habitat units were delineated only at observable breaks in water surface gradient, which often were many kilometers apart. Hence habitat descriptors that were averaged over the entire length of a unit may ignore important differences in micro habitats. Also, the amount of multiple channels were not accurately assessed, nor was stream slope on low gradient units, which dominated the stream.

REACH 1 34S-7E-3NW REACH 1

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area S/O	Snd	Grvl	Cbbl	Bldr	Bdrk
GLIDE	1	40	40.0	0.8	1,600	10	86	0	0	0	14	0
POOL-LATERAL SCOUR	3	340	37.3	3.0	14,020	28	33	0	8	28	19	11
POOL-TRENCH	1	350	40.0	3.0	14,000	1	20	0	0	40	40	0
RIFFLE	3	580	35.0	0.5	22,300	208	6	0	9	40	35	10
STEP/STRUCTURE	1	5	40.0	0.4	200	0	0	0	0	0	0	100
Total:	9	1,315	37.4	1.6	52,120	247	Avg: 25	0	6	27	24	18

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m²)	Wetted Area Percent	Large Boulders Number	Large Boulders #/100m²	Wood Class
Dammed & BW Pools	0	0	.	.	0	0.00	0	0.00	.
Scour Pools	4	690	38.0	3.0	28020	53.76	29	0.10	1.0
Glides	1	40	40.0	0.8	1600	3.07	10	0.63	1.0
Riffles	3	580	35.0	0.5	22300	42.79	208	0.93	1.0
Rapids	0	0	.	.	0	0.00	0	0.00	.
Cascades	0	0	.	.	0	0.00	0	0.00	.
Step/Falls	1	5	40.0	0.4	200	0.38	0	0.00	1.0

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

Narrow Valley Floor		Broad Valley Floor	
Steep V-shape	0	Constraining Terraces	100
Moderate V-shape	0	Multiple Terraces	0
Open V-shape	0	Wide Floodplain	0

Valley Width Index: 20.0

Channel Morphology (Percent Reach Length)

Unconstrained		Constrained	
Single Channel	0	Hillslope	0
Multiple Channel	0	Bedrock	0
Braided Channel	0	Terrace	0
		Alt. Terrace/Hill	100

Channel Characteristics

Type	Length	Area	Dry Units
Primary	1,315	52,120	0
Secondary	0	0	0

Channel Dimensions

Wetted Surface		Active Channel		First Terrace	
Width	37.4	Width	***.*	Width	***.*
Depth	1.6	Height	**.*	Height	**.*

Stream Flow: LF Water Temp: 13.0-13.0
Avg. Unit Gradient: 0.5 Habitat Units/100m: 0.7

Riparian, Bank, and Wood Summary

Land Use: RR/IN Riparian Veg.: SP

Bank Stability

Bank Class	Percent Reach Length
Non-Erodible	0.0
Vegetation Stabilized	97.3
Actively Eroding	2.7

Undercut Banks
Unit Average: 0.00%

Wood Complexity
Average Unit Score: 1.0
Average Wood Cover: 0.6%

Open Sky Above Stream (% of 180°)
Unit Average: 77
Range: 67-86

REACH 2 — 34S-7E-11NW — REACH 2

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area S/O	Snd	Grvl	Cbbl	Bldr	Bdrk
GLIDE	8	4,190	34.3	0.7	147,750	75	23	7	41	22	6	1
POOL-DAMMED	1	1,200	60.0	3.5	72,000	15	95	0	0	0	5	0
POOL-LATERAL SCOUR	1	30	15.0	2.0	450	0	40	10	20	30	0	0
POOL-STRAIGHT SCOUR	1	100	30.0	2.0	3,000	0	90	0	0	10	0	0
RIFFLE	10	480	28.1	0.4	13,595	34	0	3	53	34	10	0
Total:	21	6,000	31.4	0.8	236,795	124	Avg:19	5	42	27	7	0

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m²)	Wetted Area Percent	Large Boulders Number	Large Boulders #/100m²	Wood Class
Dammed & BW Pools	1	1,200	60.0	3.5	72000	30.41	15	0.02	1.0
Scour Pools	2	130	22.5	2.0	3450	1.46	0	0.00	1.0
Glides	8	4,190	34.3	0.7	147750	62.40	75	0.05	1.0
Riffles	10	480	28.1	0.4	13595	5.74	34	0.25	1.0
Rapids	0	0	.	.	0	0.00	0	0.00	.
Cascades	0	0	.	.	0	0.00	0	0.00	.
Step/Falls	0	0	.	.	0	0.00	0	0.00	.

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

Narrow Valley Floor		Broad Valley Floor	
Steep V-shape	0	Constraining Terraces	0
Moderate V-shape	100	Multiple Terraces	0
Open V-shape	0	Wide Floodplain	0

Valley Width Index: 3.4

Channel Morphology (Percent Reach Length)

Unconstrained		Constrained	
Single Channel	80	Hillslope	20
Multiple Channel	0	Bedrock	0
Braided Channel	0	Terrace	0
		Alt. Terrace/Hill	0

Channel Characteristics

Type	Length	Area	Dry Units
Primary	5,960	235,995	0
Secondary	40	800	0

Channel Dimensions

Wetted Surface		Active Channel		First Terrace	
Width	31.4	Width	38.8	Width	50.0
Depth	0.8	Height	0.7	Height	1.4

Stream Flow: LF Water Temp: 13.0-13.0
Avg. Unit Gradient: 0.3 Habitat Units/100m: 0.4

Riparian, Bank, and Wood Summary

Land Use: MT Riparian Veg.: CM

Bank Stability

Bank Class	Percent Reach Length
Non-Erodible	0.0
Vegetation Stabilized	100.0
Actively Eroding	0.0

Undercut Banks
Unit Average: 0.00%

Wood Complexity
Average Unit Score: 1.0
Average Wood Cover: 0.2%

Open Sky Above Stream (% of 180°)
Unit Average: 79
Range: 53-86

REACH 3 34S-7E-36NW REACH 3

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area S/O	Snd	Grvl	Cbbl	Bldr	Bdrk
GLIDE	1	40	35.0	0.5	1,400	6	80	0	0	0	20	0
POOL-STRAIGHT SCOUR	1	250	40.0	1.0	10,000	18	80	0	0	0	20	0
RAPID/BOULDERS	1	75	23.0	0.2	1,725	29	20	0	0	40	40	0
RIFFLE	2	370	27.5	0.4	10,750	121	10	0	5	45	40	0
RIFFLE W/ POCKETS	2	650	27.5	0.5	18,250	239	10	5	5	30	50	0
Total:	7	1,385	29.7	0.5	42,125	413	Avg:31	1	3	27	37	0

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m²)	Wetted Area Percent	Large Boulders Number	Large Boulders #/100m²	Wood Class
Dammed & BW Pools	0	0	.	.	0	0.00	0	0.00	.
Scour Pools	1	250	40.0	1.0	10000	23.74	18	0.18	1.0
Glides	1	40	35.0	0.5	1400	3.32	6	0.43	1.0
Riffles	4	1,020	27.5	0.4	29000	68.84	360	1.24	1.0
Rapids	1	75	23.0	0.2	1725	4.09	29	1.68	1.0
Cascades	0	0	.	.	0	0.00	0	0.00	.
Step/Falls	0	0	.	.	0	0.00	0	0.00	.

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

Narrow Valley Floor		Broad Valley Floor	
Steep V-shape	0	Constraining Terraces	0
Moderate V-shape	100	Multiple Terraces	0
Open V-shape	0	Wide Floodplain	0

Valley Width Index: 2.5

Channel Morphology (Percent Reach Length)

Unconstrained		Constrained	
Single Channel	0	Hillslope	100
Multiple Channel	0	Bedrock	0
Braided Channel	0	Terrace	0
		Alt. Terrace/Hill	0

Channel Characteristics

Type	Length	Area	Dry Units
Primary	1,385	42,125	0
Secondary	0	0	0

Channel Dimensions

Wetted Surface		Active Channel		First Terrace	
Width	29.7	Width	***.*	Width	***.*
Depth	0.5	Height	**.*	Height	**.*

Stream Flow: MF Water Temp: 14.0-14.0
Avg. Unit Gradient: 1.3 Habitat Units/100m: 0.5

Riparian, Bank, and Wood Summary

Land Use: MT Riparian Veg.: CM

Bank Stability

Bank Class	Percent Reach Length
Non-Erodible	2.7
Vegetation Stabilized	97.3
Actively Eroding	0.0

Undercut Banks
Unit Average: 0.00%

Wood Complexity
Average Unit Score: 1.0
Average Wood Cover: 0.0%

Open Sky Above Stream (% of 180°)
Unit Average: 71
Range: 69-75

REACH 4 34S-8E-21NE REACH 4

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area S/O	Snd	Grvl	Cbbl	Bldr	Bdrk
GLIDE	23	31,840	20.6	1.1	783,885	22	91	0	0	3	2	3
POOL-LATERAL SCOUR	2	110	25.0	1.5	2,750	1	65	0	0	5	5	25
POOL-STRAIGHT SCOUR	3	1,275	31.7	1.5	39,125	0	80	3	3	0	0	13
RIFFLE	1	35	35.0	0.3	1,225	3	80	0	0	10	10	0
STEP/STRUCTURE	1	10	30.0	0.3	300	0	0	0	0	100	0	0
Total:	30	33,270	22.8	1.1	827,285	26	Avg:85	1	1	6	3	5

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m²)	Wetted Area Percent	Large Boulders Number	Large Boulders #/100m²	Wood Class
Dammed & BW Pools	0	0	.	.	0	0.00	0	0.00	.
Scour Pools	5	1,385	29.0	1.5	41875	5.06	1	**** **	1.0
Glides	23	31,840	20.6	1.1	783885	94.75	22	**** **	1.0
Riffles	1	35	35.0	0.3	1225	0.15	3	0.24	1.0
Rapids	0	0	.	.	0	0.00	0	0.00	.
Cascades	0	0	.	.	0	0.00	0	0.00	.
Step/Falls	1	10	30.0	0.3	300	0.04	0	0.00	1.0

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

Narrow Valley Floor		Broad Valley Floor	
Steep V-shape	0	Constraining Terraces	0
Moderate V-shape	0	Multiple Terraces	0
Open V-shape	14	Wide Floodplain	86

Valley Width Index: 7.5

Channel Morphology (Percent Reach Length)

Unconstrained		Constrained	
Single Channel	9	Hillslope	5
Multiple Channel	86	Bedrock	0
Braided Channel	0	Terrace	0
		Alt. Terrace/Hill	0

Channel Characteristics

Type	Length	Area	Dry Units
Primary	32,235	815,710	0
Secondary	1,035	11,575	0

Channel Dimensions

Wetted Surface		Active Channel		First Terrace	
Width	22.8	Width	79.9	Width	241.7
Depth	1.1	Height	1.7	Height	2.5

Stream Flow: MF Water Temp: 0.0-14.0
Avg. Unit Gradient: **.* Habitat Units/100m: 0.1

Riparian, Bank, and Wood Summary

Land Use: MT Riparian Veg.: GS/CM

Bank Stability

Bank Class	Percent Reach Length
Non-Erodible	0.0
Vegetation Stabilized	57.9
Actively Eroding	42.1

Undercut Banks
Unit Average: 0.00%

Wood Complexity		Open Sky Above Stream (% of 180°)	
Average Unit Score:	1.0	Unit Average:	85
Average Wood Cover:	0.0%	Range:	75-92

REACH 5 35S-9E-10SE REACH 5

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area S/O	Snd	Grvl	Cbbl	Bldr	Bdrk
GLIDE	13	14,030	16.5	1.1	282,450	17	95	3	0	0	1	0
RIFFLE	3	120	20.0	0.6	2,460	14	13	7	3	67	10	0
Total:	16	14,150	17.2	1.0	284,910	31	Avg:80	4	1	13	3	0

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m²)	Wetted Area Percent	Large Boulders Number	Large Boulders #/100m²	Wood Class
Dammed & BW Pools	0	0	.	.	0	0.00	0	0.00	.
Scour Pools	0	0	.	.	0	0.00	0	0.00	.
Glides	13	14,030	16.5	1.1	282450	99.14	17	0.01	1.0
Riffles	3	120	20.0	0.6	2460	0.86	14	0.57	1.0
Rapids	0	0	.	.	0	0.00	0	0.00	.
Cascades	0	0	.	.	0	0.00	0	0.00	.
Step/Falls	0	0	.	.	0	0.00	0	0.00	.

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

Narrow Valley Floor		Broad Valley Floor	
Steep V-shape	0	Constraining Terraces	30
Moderate V-shape	0	Multiple Terraces	0
Open V-shape	41	Wide Floodplain	30

Valley Width Index: 3.4

Channel Morphology (Percent Reach Length)

Unconstrained		Constrained	
Single Channel	8	Hillslope	41
Multiple Channel	51	Bedrock	0
Braided Channel	0	Terrace	0
		Alt. Terrace/Hill	0

Channel Characteristics

Type	Length	Area	Dry Units
Primary	13,695	280,360	0
Secondary	455	4,550	0

Channel Dimensions

Wetted Surface		Active Channel		First Terrace	
Width	17.2	Width	35.0	Width	70.0
Depth	1.0	Height	2.0	Height	2.5

Stream Flow: MF
Avg. Unit Gradient: **.*
Water Temp: 12.0-15.0
Habitat Units/100m: 0.1

Riparian, Bank, and Wood Summary

Land Use: RR/MT
Riparian Veg.: GS/CM

Bank Stability

Bank Class	Percent Reach Length
Non-Erodible	0.2
Vegetation Stabilized	54.9
Actively Eroding	44.9

Undercut Banks
Unit Average: 0.00%

Wood Complexity
Average Unit Score: 1.0
Average Wood Cover: 0.0%

Open Sky Above Stream (% of 180°)
Unit Average: 80
Range: 75-86

STREAM SUMMARY SPRAGUE RIVER

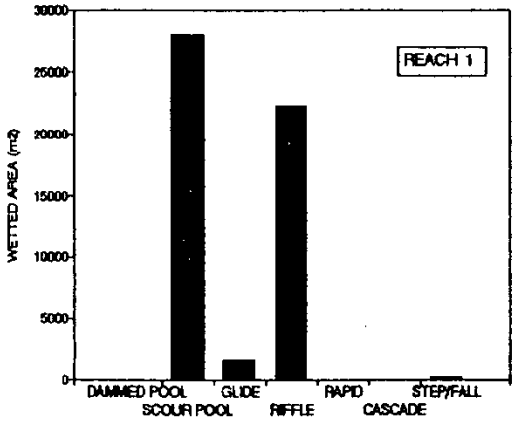
Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m^2)	Substrate Percent Wetted Area S/O	Sand	Grvl	Cbbl	Bldr	Bdrk	Total Large Boulder
83	56,120	26.1	1.0	1,443,235	56	2	12	17	9	4	841

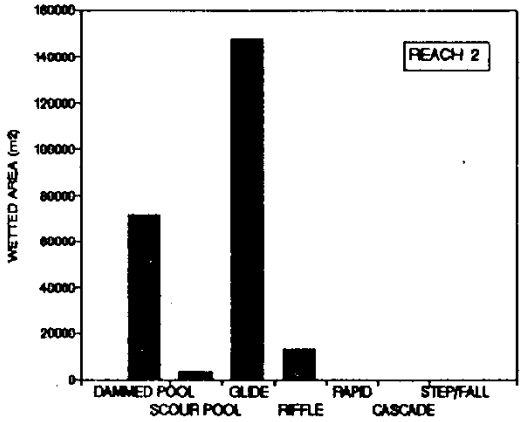
Habitat Group	Wetted Area (m^2)	Percent
Scour Pool	83345	5.8
Backwater Pools	72000	5.0
Glide	1217085	84.3
Riffle	68580	4.8
Rapid	1725	0.1
Cascade	0	0.0
Step	500	**.*

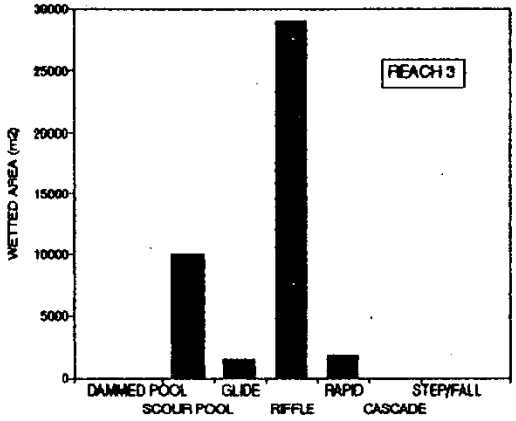
SPRAGUE RIVER, WOOD SUMMARY

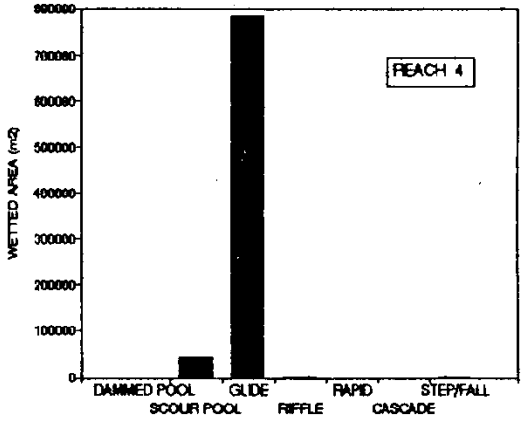
REACH	(m) DISTANCE	PIECES	(m^3) VOLUME	PIECES /100m	VOLUME /100m
1	1310	0	0	0.00	0.00
2	5865	24	25	0.41	0.42
3	1485	12	6	0.81	0.43
4	32235	32	17	0.10	0.05
5	13695	8	17	0.06	0.13

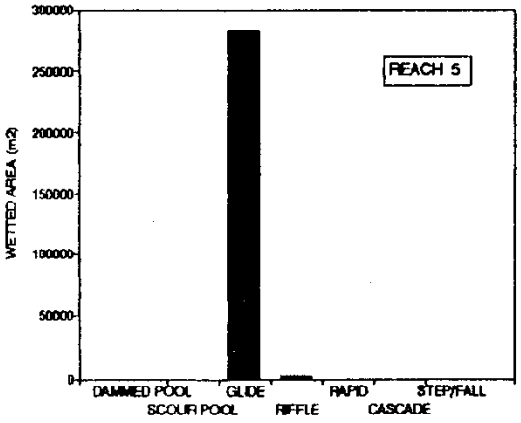
SPRAGUE RIVER: HABITAT DISTRIBUTION

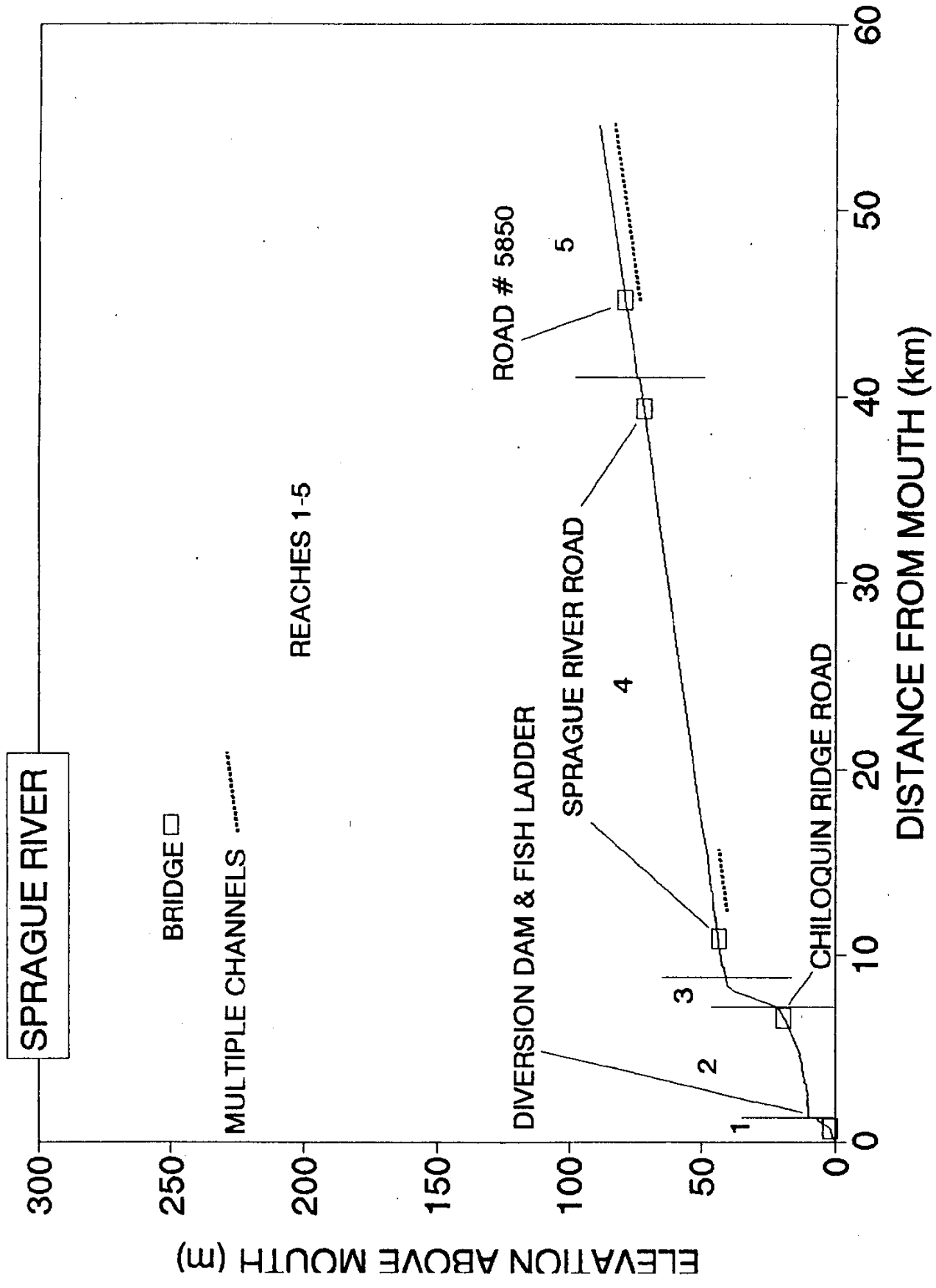


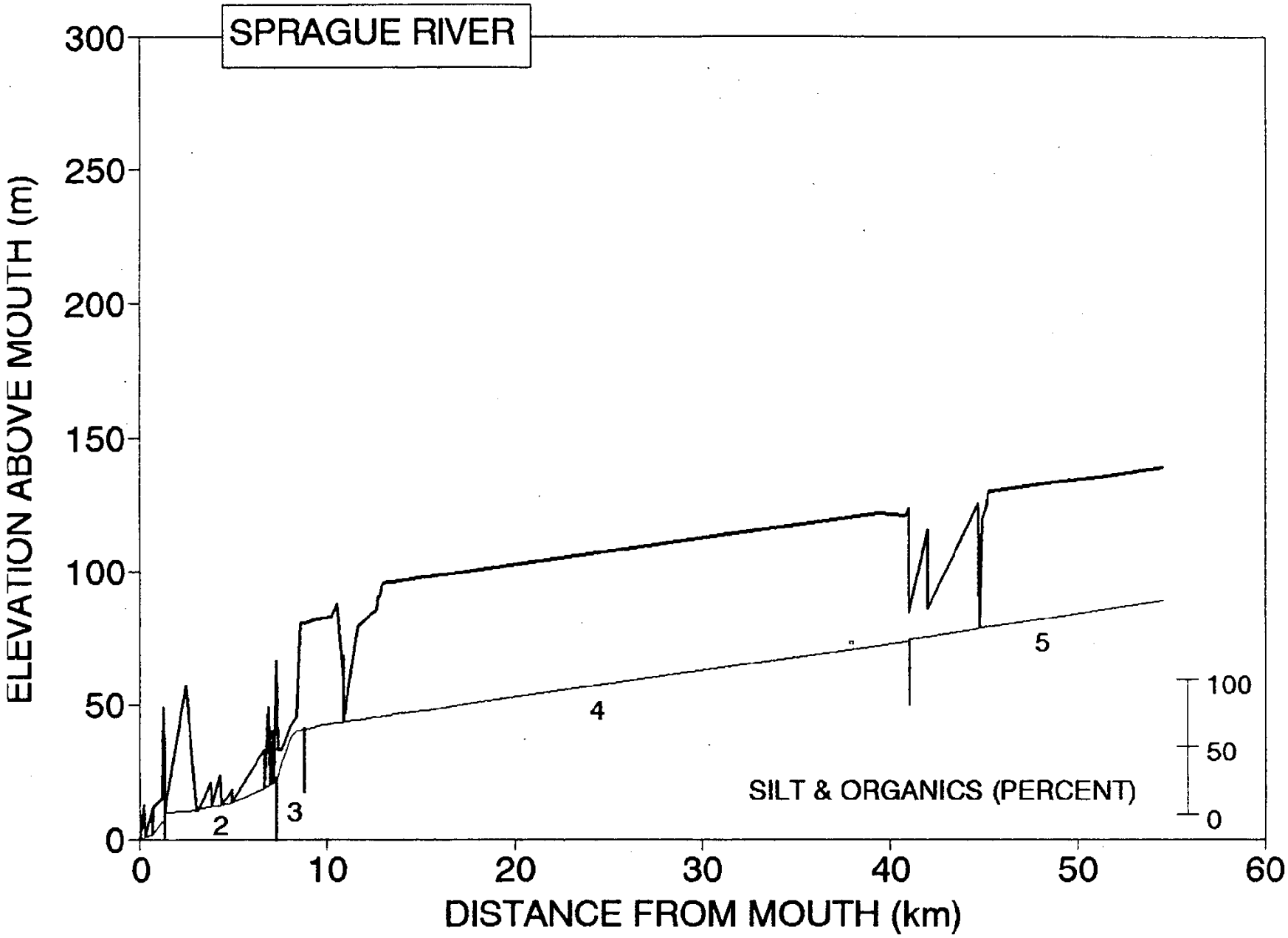


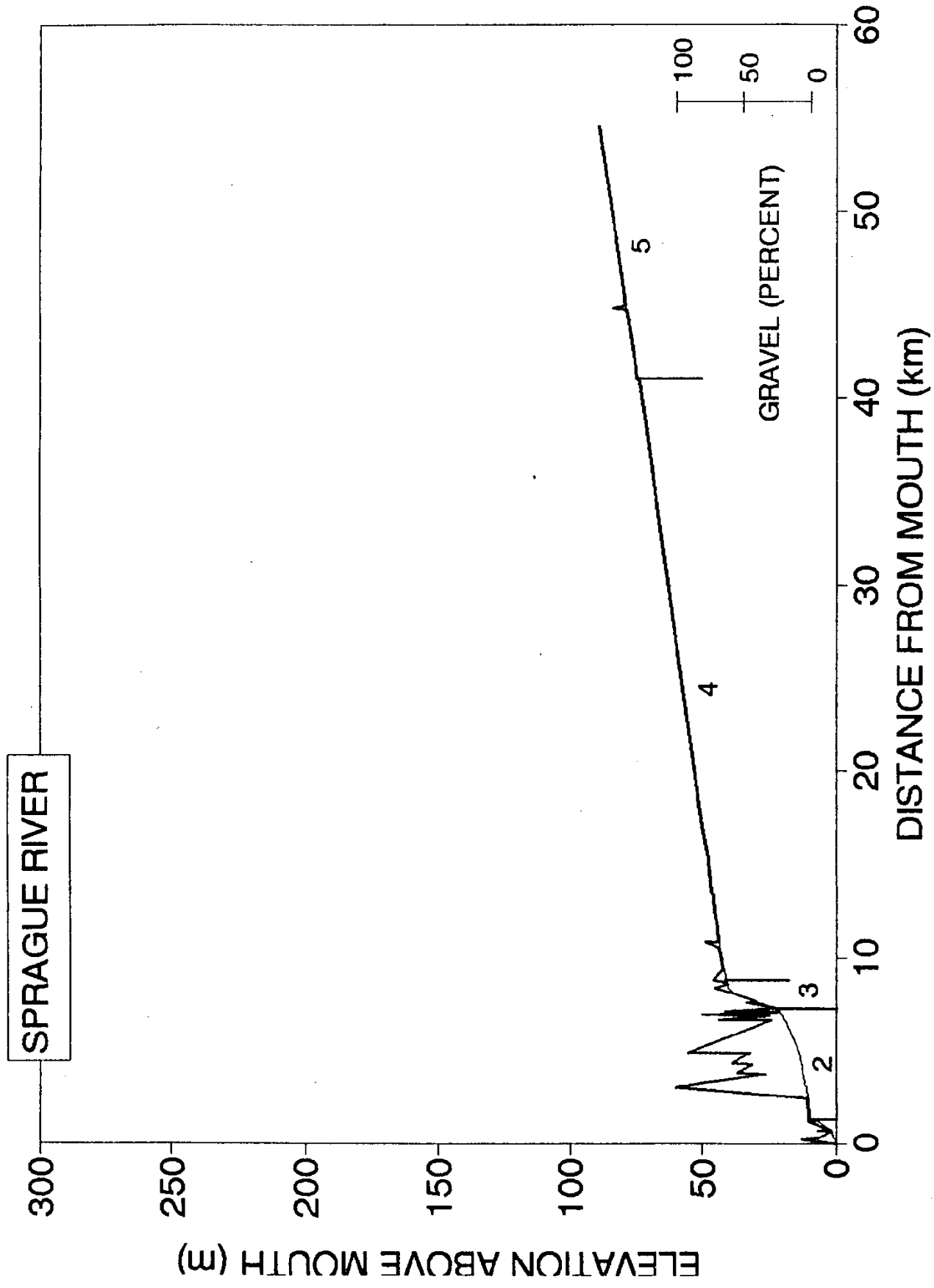


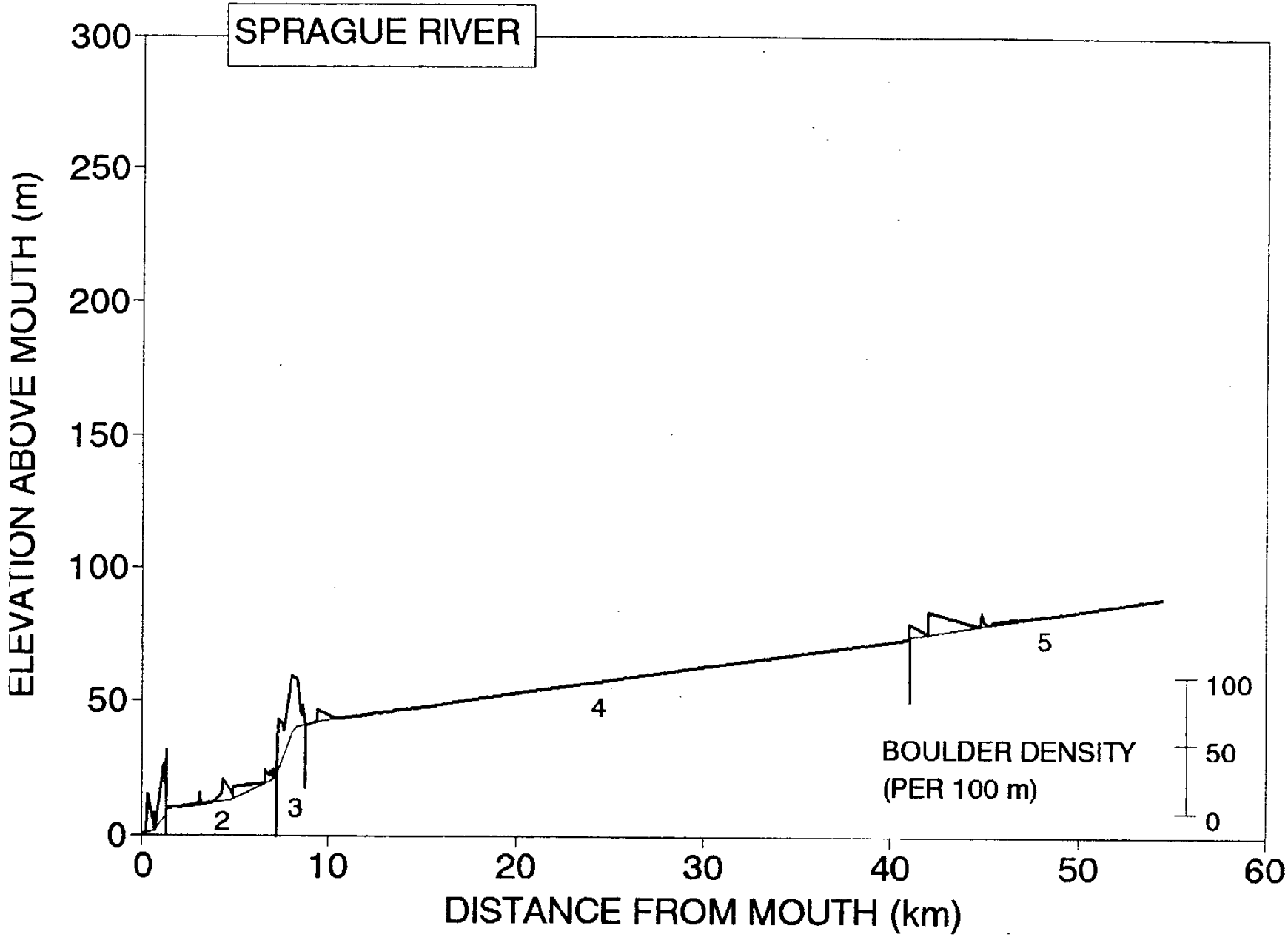


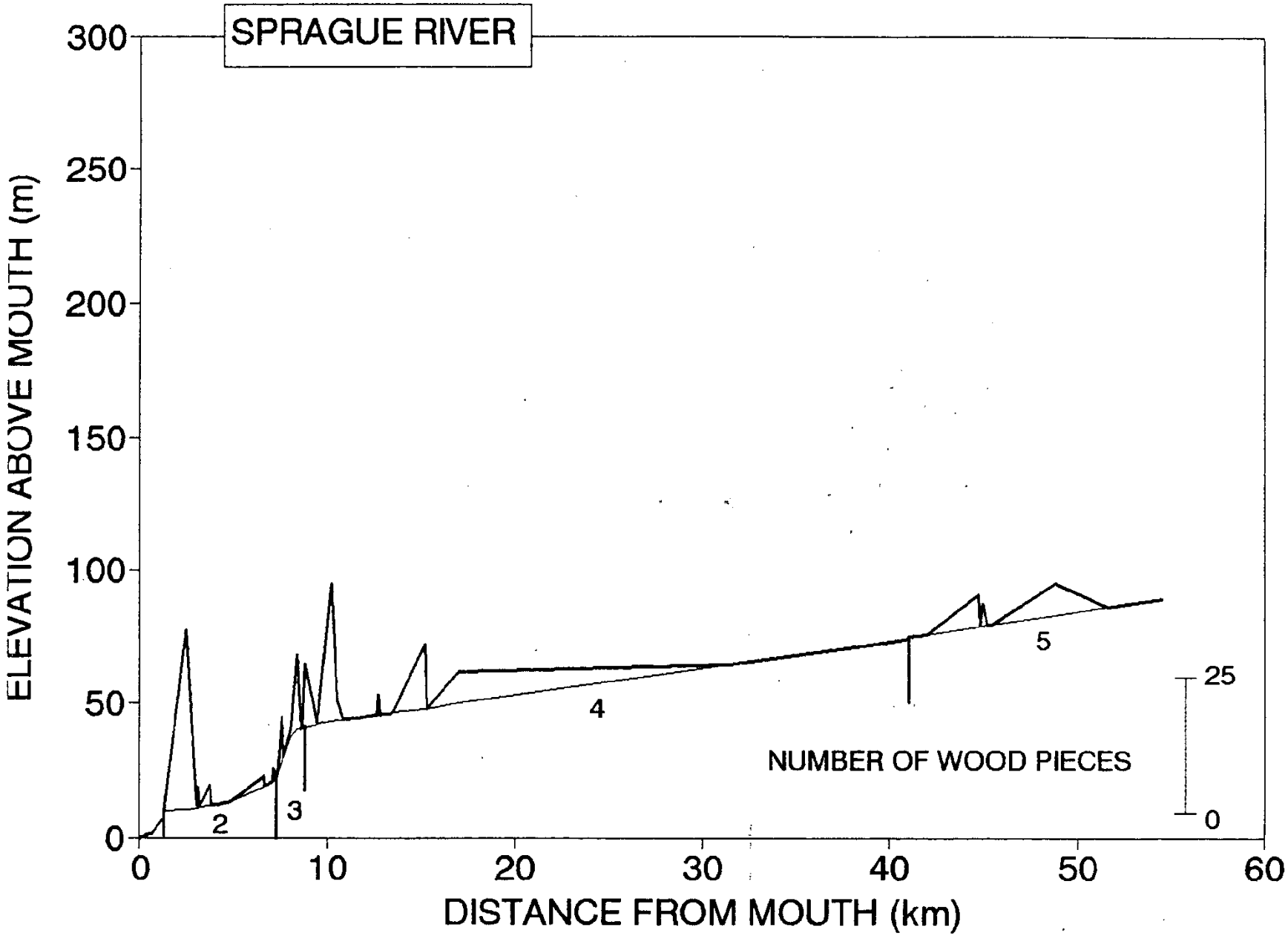


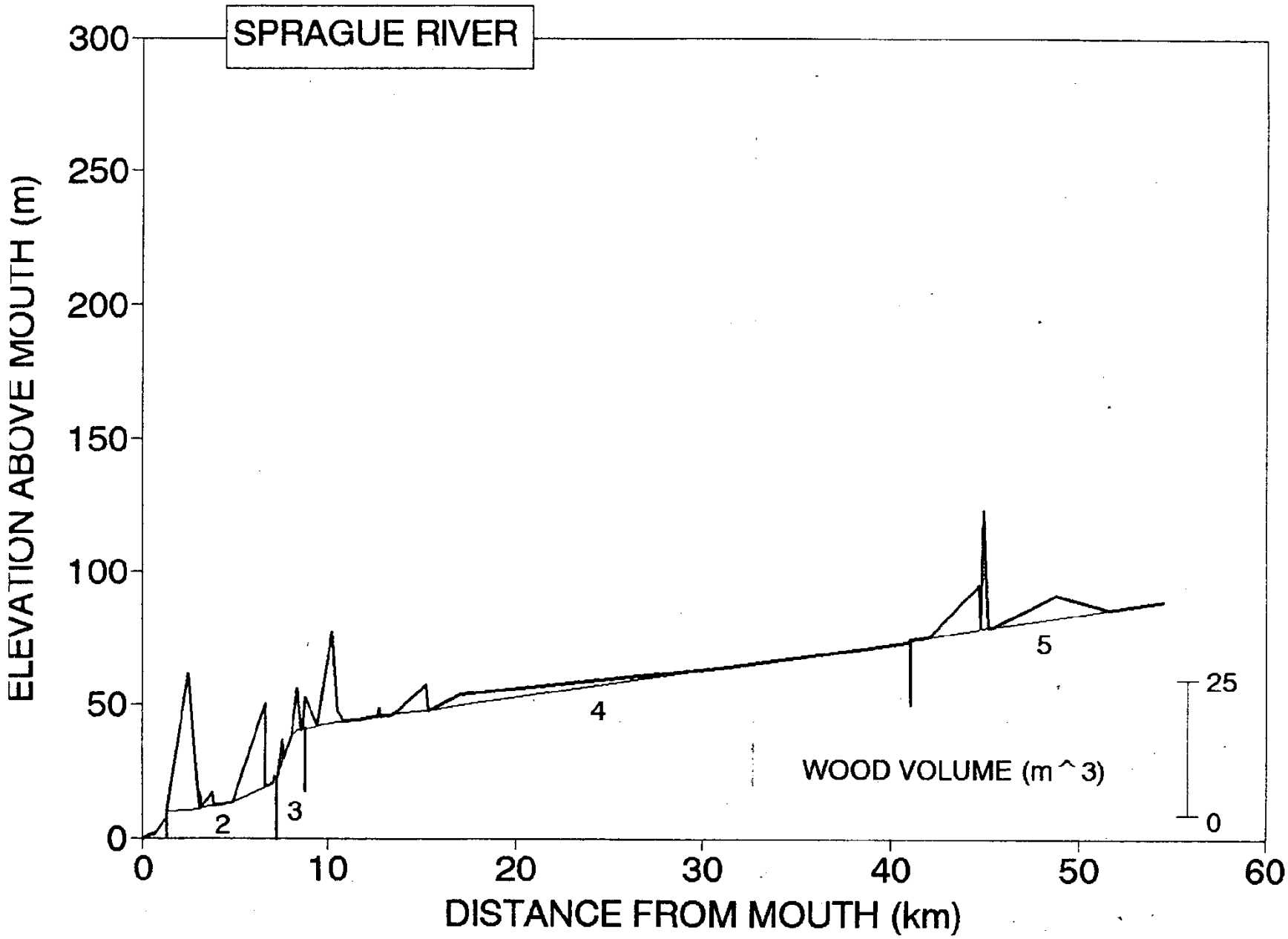

SPRAGUE RIVER
BRIDGE
MULTIPLE CHANNELS
REACHES 1-5
DIVERSION DAM & FISH LADDER
SPRAGUE RIVER ROAD
ROAD # 5850
CHILOQUIN RIDGE ROAD
1
2
3
4
5
ELEVATION ABOVE MOUTH (m)
DISTANCE FROM MOUTH (km)
0
50
100
150
200
250
300
0
10
20
30
40
50
60

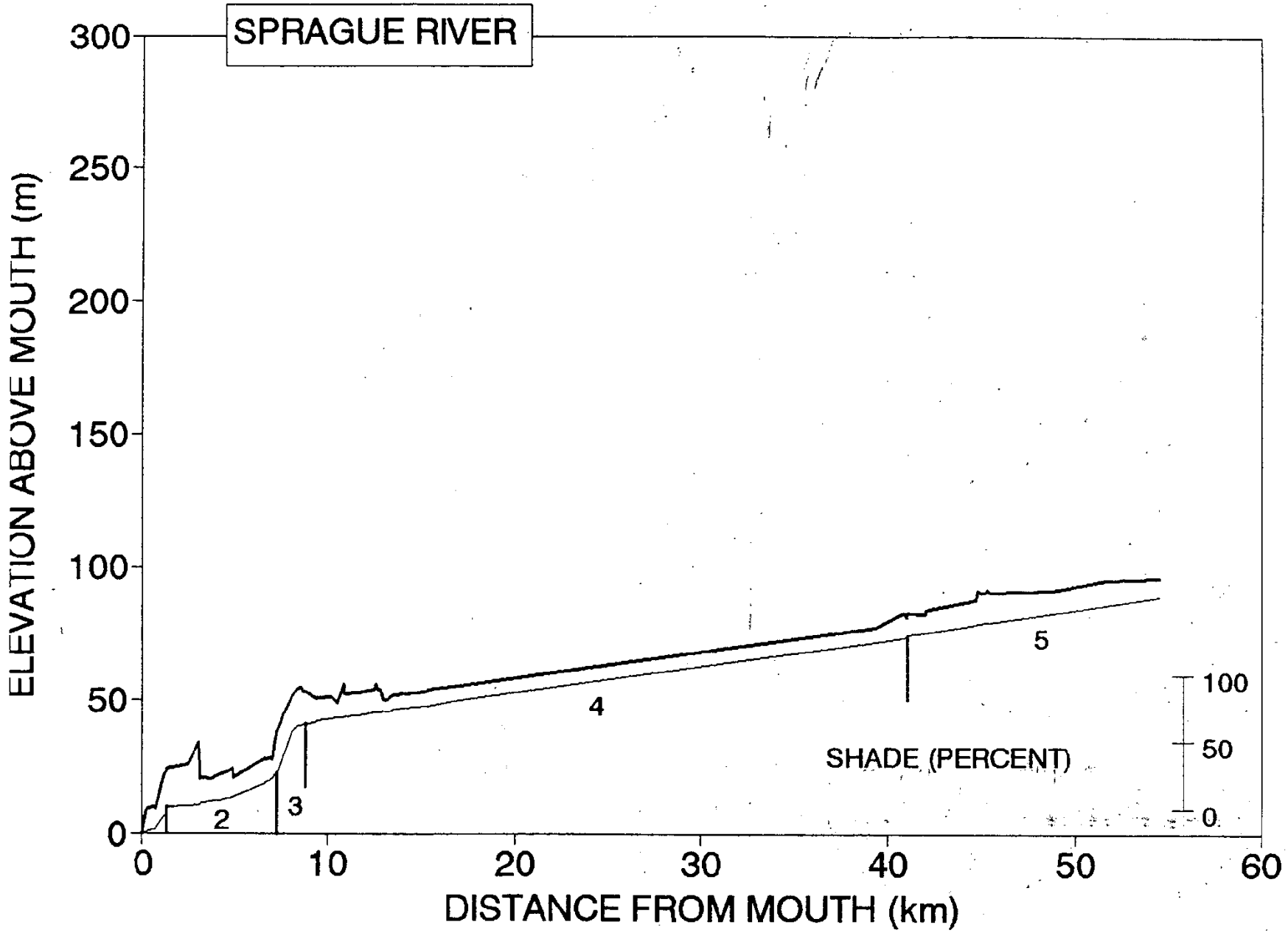

SPRAGUE RIVER
ELEVATION ABOVE MOUTH (m)
300
250
200
150
100
50
0
0
10
20
30
40
50
60
DISTANCE FROM MOUTH (km)
2
3
4
5
SILT & ORGANICS (PERCENT)
100
50
0


SPRAGUE RIVER
ELEVATION ABOVE MOUTH (m)
300
250
200
150
100
50
0
0
10
20
30
40
50
60
DISTANCE FROM MOUTH (km)
GRAVEL (PERCENT)
100
50
0
2
3
4
5


SPRAGUE RIVER
ELEVATION ABOVE MOUTH (m)
300
250
200
150
100
50
0
0
10
20
30
40
50
60
DISTANCE FROM MOUTH (km)
2
3
4
5
BOULDER DENSITY
(PER 100 m)
100
50
0


SPRAGUE RIVER
ELEVATION ABOVE MOUTH (m)
300
250
200
150
100
50
0
0
10
20
30
40
50
60
DISTANCE FROM MOUTH (km)
2
3
4
5
NUMBER OF WOOD PIECES
25
0


SPRAGUE RIVER
ELEVATION ABOVE MOUTH (m)
300
250
200
150
100
50
0
0
10
20
30
40
50
60
DISTANCE FROM MOUTH (km)
2
3
4
5
WOOD VOLUME (m ^ 3)
25
0


SPRAGUE RIVER
ELEVATION ABOVE MOUTH (m)
300
250
200
150
100
50
0
0
10
20
30
40
50
60
DISTANCE FROM MOUTH (km)
2
3
4
5
SHADE (PERCENT)
100
50
0

SPRAGUE RIVER, KLAMATH BASIN; COMMENT SUMMARY: 1991 SURVEY 1 of 1

REACH	UNIT	TYPE	CHANL	DISTANCE	CODE	NOTE 1	NOTE 2
1	1	LP	00	0.23			RAILROAD BRIDGE-BOTTOM COVERED
1	2	RI	00	0.30			IN WEED/ALGAE MATS
1	5	LP	00	0.77	BC		PRIVATE BRIDGE
1	6	RI	00	1.22	SDY		HIGH SCHOOL
1	7	GL	00	1.26			95% S/O=VEG MATS
1	9	SS	00	1.32	DAM	DIVERSION & FISH LADDER	PHOTO 4/11:09;5/11:12
2	10	DP	00	2.52			P-7 FLOODED TERRACE/BA OLD
2	11	GL	00	3.07		ISLAND AT 350M	
2	15	GL	00	3.78	BC (OLD)		
2	20	RI	00	4.94			EDGE OF USFS
2	21	GL	00	5.64			PRIVATE PROPERTY
2	22	RI	00	6.66	BC		CHILOQUIN RIDGE RD
2	23	GL	00	6.84	BC	BC	CHILOQUIN RIDGE RD2#
3	30	SP	00	7.26			MM2
3	31	RB	00	7.35		AT #2 ROAD MILE	
4	40	RI	00	9.47		DEPTHS IMPOSSIBLE TO DETERMINE	INTERS OF SPRAGUE R HWY + 5812
4	41	GL	00	10.27		5 MILE MARKER	
4	44	LP	00	10.92	BC		SPRAGUE RIVER HWY
4	45	SS	00	10.93	DD	OLD BRIDGE CROSSING	OLD BRIDGE COBBLES
4	46	SP	00	11.73			WILLAMSON ROAD
4	47	GL	00	12.53			17/14:51 RIVER SPLITS,MARSH
4	48	LP	00	12.59	WL/BV		BEAVER/MINK
4	49	GL	01	12.69	WL/BV	WM BETWEEN SPLIT	SPLIT CHANNEL
4	50	GL	02		WL/BV	AC WIDTH=300	18/15:58
4	51	GL	01	12.78	WL/BV		
4	52	GL	02		WL/BV		
4	53	GL	01	12.88	WL/BV		
4	54	GL	02		WL/BV		
4	55	GL	00	12.96	WL/BV		
4	56	GL	01	13.21	WL/BV		19/09:37
4	57	GL	02		WL/BV		
4	58	GL	00	13.35	WL/BV		
4	59	GL	01	13.55	WL/BV		
4	60	GL	02		WL/BV	AC WIDTH=300	
4	61	GL	00	15.25	WL/BV		
4	62	GL	01	15.40	WL/BV		
4	63	GL	02		WL/BV		
4	64	GL	00	17.00	WL/BV		GEORGE WEBB PROPERTY
4	65	GL	00	31.40	WL/BV		
4	66	GL	00	39.40	WL/BV		
4	67	GL	00	40.90			24/09:39-WATER WITH DRAW
5	69	RI	00	41.05			MM ROCK CONSTRUCTION
5	70	GL	00	42.05		ISLAND	
5	71	RI	00	42.08	BC (OLD)	OLD BC	
5	72	GL	00	44.78	WL/BV	SEE NOTE ON BACK	26,27/12:58-DOWN + UPSTREAM
5	73	RI	00	44.84	WL/BV		
5	74	GL	00	45.04	WL/BV		28/13:20 T = 13.5C
5	75	GL	01	45.19	WL/BV		
5	76	GL	02		WL/BV		
5	77	GL	01	45.39	WL/BV		
5	78	GL	02		WL/BV		
5	79	GL	01	45.49	WL/BV		
5	80	GL	02		WL/BV		
5	81	GL	00	48.79	WL/BV	WM MANY SPLIT CHANNELS	
5	82	GL	00	51.59	WL/BV		
5	83	GL	00	54.59	WL/BV		