

LIBRARY COPY

SURVEYS OF SOME SLOUGHS OF THE LOWER COLUMBIA RIVER

Oregon State Game Commission
Fishery Division

C. J. Campbell
Chief of Operations

by

Ted T. Fies

January 1971

Table of Contents

	<u>Page</u>
Purpose of Survey	1
Survey Structure.	2
Vicinity Map.	4
Area I	5
Area II	30
Area III.	52
Recommendations	58
Acknowledgment.	59
Map: Columbia River - Tongue Point to Bonneville Dam	Appendix

Purpose of Survey

The lower Columbia River from Tongue Point to Bonneville Dam has within its drainage many sloughs which have been generally neglected by both anglers and fishery scientists.

In the spring of 1970, the Oregon State Game Commission initiated a survey program to gather basic physical, biological, and chemical information from major slough areas.

The primary purpose of the survey was to determine the angling potential of the sloughs. Angling potential was determined after analyzing fish populations, access, and water quality.

Survey Structure

Determination of angling potential for each slough was accomplished by the analysis of data collected in three categories: physical, biological, and chemical.

A. Physical

This portion of the survey includes a description of the area, accessibility, and map sketch. Depth information is presented with the chemical data.

B. Biological

Gill nets were used to sample fish populations. Due to limited time and equipment, sampling of bottom food organisms was not included in this survey. Gill-net catches are shown for each slough surveyed. Data includes species, number taken, length, percent of total catch, and minimum acceptable size. Species of fish taken are listed in abbreviated form. The following list presents fish abbreviations used in this report:

Fish Abbreviations

BC	black crappie	F	flounder
Bg	bluegill sunfish	LB	largemouth bass
BrB	brown bullhead	Sh	shad
CC	channel catfish	Sq	squawfish
Clm	chiselmouth	WC	white crappie
Cot	cottid	Wm	warmouth bass
Cp	carp	WSg	white sturgeon
CRC	Columbia River chub	YB	yellow bullhead
CSu	coarsescale sucker	YP	yellow perch

In addition to standard fish population data, three columns labeled Minimum Acceptable Size, Number Above, and Percent were used. Minimum acceptable size is an arbitrary designation used to provide a measure of the value to the angler of the present population of any species. Minimum lengths were assigned to the principal game fish

species found in the sloughs. The minimum lengths (in inches) for each species are as follows:

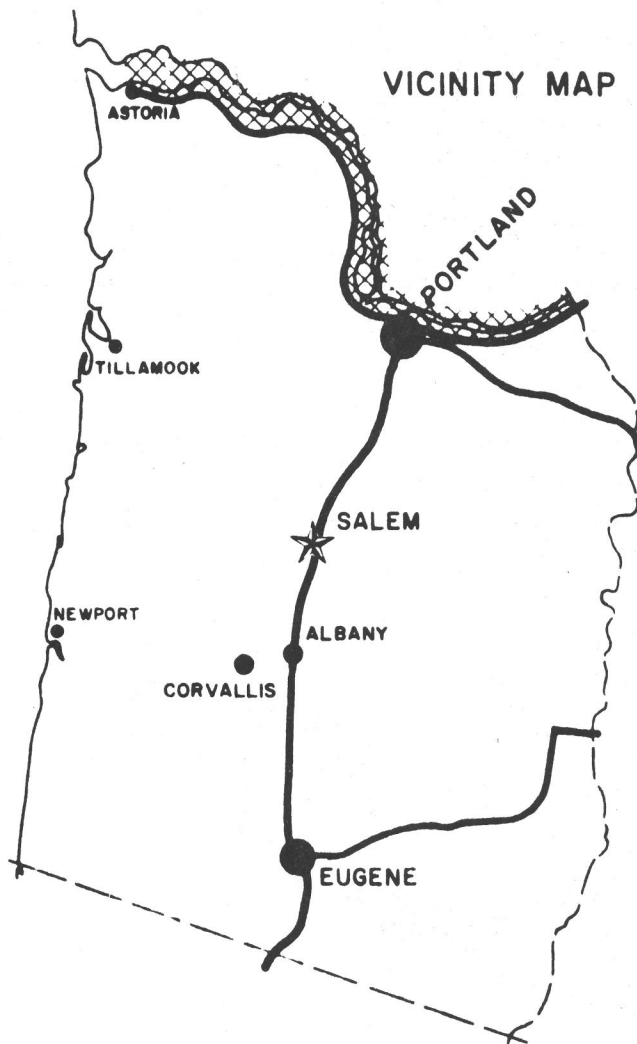
Minimum Acceptable Size			
	(Inches)		(Inches)
BC	7.0	WC	7.0
Bg	5.0	Wm	6.0
BrB	7.0	WSg	36.0*
CC	8.0	YB	7.0
LB	8.0	YP	7.0

*Minimum length for sturgeon set by angling regulations.

During the fall of 1970, gill nets were set in several selected sloughs previously sampled in the spring. The results of these resets are presented along with corresponding spring data for the purpose of comparison.

C. Chemical

Chemical analysis of the sloughs was conducted by the use of a Hach test kit. Depth readings were obtained by using a weighted handline. Temperatures were taken using an electric thermometer (Applied Research, Model FT-3). Dissolved oxygen (ppm), pH, and turbidity (ppm) were obtained for each slough. Minimum and maximum readings are shown for each slough.



Lower Columbia River

The portion of the Columbia River included in this study extends from Tongue Point to Bonneville Dam, a distance of 131 river miles. No other drainages will be included in this study.

Interstate 80 freeway provides access to the area east of Portland, while Highway 30 extends along the lower river to the west. Road access is generally good with some exceptions in Area I.

The river near Portland is within a few minutes driving distance for most residents. The lower river is about $1\frac{1}{2}$ hours driving distance from Portland.

Area I

This area contains the largest amount of slough area on the lower Columbia. Surveys of sloughs in this area revealed an abundance of angling potential. Populations of game fish are generally greater than those found in upriver sloughs. Westport, Blind, and Beaver Sloughs are prime areas for warm-water game fish production. In addition to tidal sloughs, there are several extensive slough networks behind tide gates which support game fish populations although stunting of certain species is evident. Access is available for both boat and bank angling in all areas, but private land limits bank access. Additional boat ramps and bank access sites are needed to better utilize the sloughs.

Area I

Site No. 19

Name Blind Slough

Date Surveyed June 23, 1970

Description

The terrain is flat. Cover consists of mud banks, brush, pastureland, and deciduous trees. Much of the slough is bordered by steep-banked dikes which are riprapped. Flows are stable, and a strong tidal influence is present. Water quality is fair.

Accessibility

Boat access is from the Prairie Channel of the Columbia and an unimproved boat ramp at the upper end of the slough. Bank access is from county roads and across private land. Log storage in lower reaches of the slough reduces angling area.

Recommendations

A fair population of game fish is present, but rough fish are dominant. Angling pressure is light. The angling potential of this area is not being fully utilized.

Area I

Site No. 19

Fish Populations

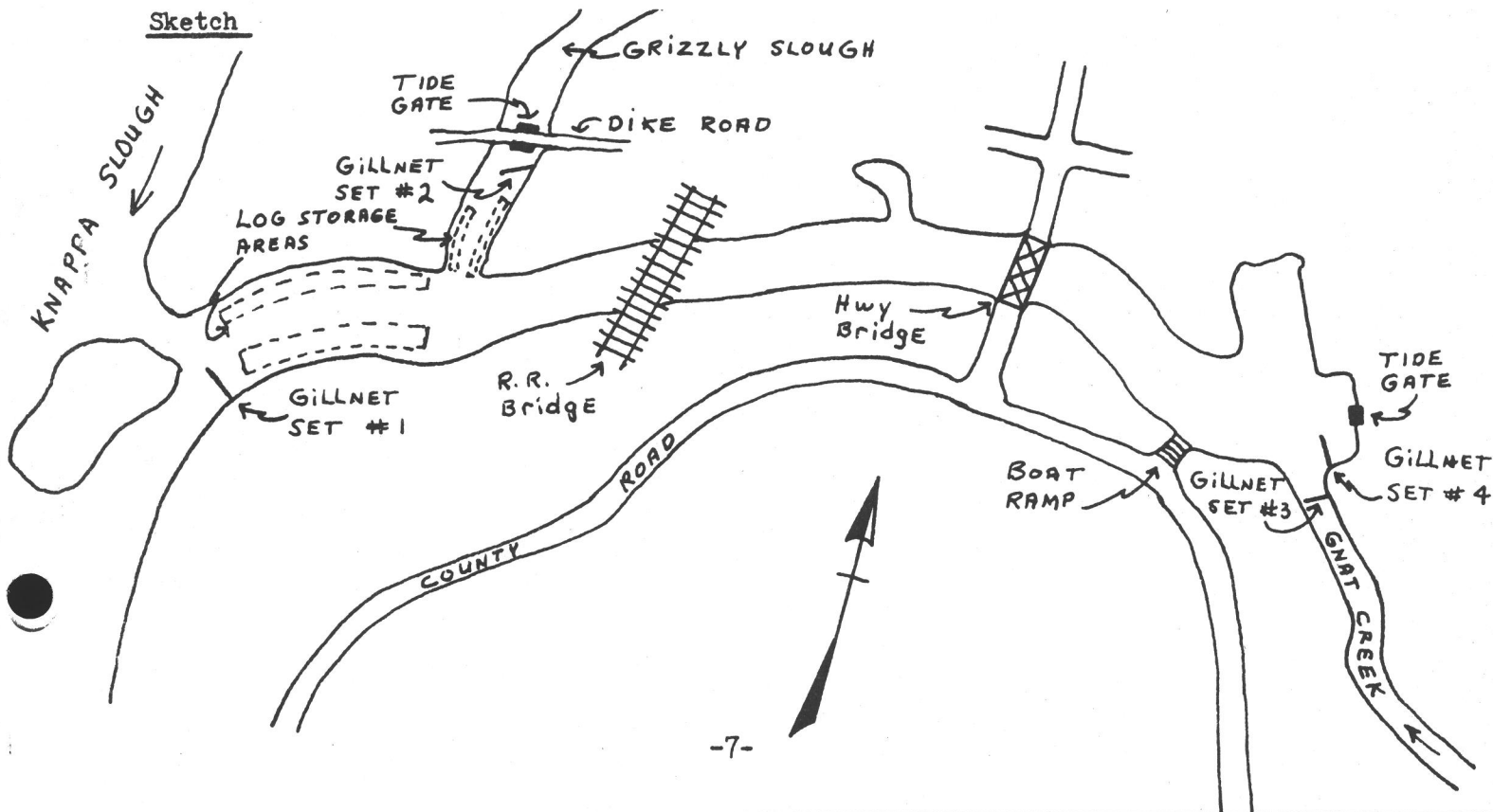
Number Gill Net Sets 4

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
YP	18	4.0-12.0	6.8	10.0	7.0	6	33
YB	1	-	8.0	0.6	7.0	1	100
WC	2	-	9.0	1.0	7.0	2	100
BC	5	5.0-12.0	7.6	3.0	7.0	3	60
LB	1	-	11.0	0.6	8.0	1	100
Sh	6	5.0-21.0	12.2	3.0	-	-	-
CRC	112	6.0-10.0	7.6	65.0	-	-	-
CSu	20	8.0-17.0	12.7	12.0	-	-	-
Cp	6	6.0-12.0	9.7	3.0	-	-	-
Cot	1	-	5.0	0.6	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		31
Temperature (°F.)	63	68
Dissolved Oxygen (ppm)	11	11
pH	7.3	7.3
Turbidity (ppm)	15	15

Sketch



Area I

Site No. 19

Fish Populations

Reset September 29, 1970

Number Gill Net Sets 2

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	15	5.0-11.0	6.4	12.5	7.0	3	20
BC	1	-	6.0	0.8	7.0	0	0
YP	33	6.0-10.0	7.1	27.5	7.0	31	94
LB	1	-	8.0	8.0	8.0	1	100
Ch	2	-	6.0	1.7	-	-	-
F	3	4.0- 5.0	4.7	2.5	-	-	-
CRC	58	6.0-12.0	8.2	48.3	-	-	-
CSu	6	13.0-18.0	15.8	5.0	-	-	-
Cot	1	-	5.0	0.8	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		
Temperature (°F.)		
Dissolved Oxygen (ppm)		
pH		
Turbidity (ppm)		

Area I

Site No. 19

Name Brownsmead Slough (behind tide gates)

Date Surveyed August 6, 1970

Description

The terrain is flat. Cover is composed of mud banks, pastureland, brush, and deciduous trees. Much of the slough is bordered by steep dike banks. Flows are stable and no tidal influence. Water quality varies from poor to good.

Accessibility

Both bank and boat access is limited. An unimproved boat-launching site is present but not recommended for trailered boats. Bank access is limited by private land, although county roads and bridges provide some access.

Recommendations

A high population of game fish is present but some species, such as yellow perch, show stunting. Rough fish are abundant but show a different species composition than sloughs connected directly to the Columbia. The upper reaches of this slough contain the best populations of game fish. Angling pressure is light. Chemical treatment is a tool which could be used to fully develop the potential of this slough. The deeper and colder areas of the lower slough may support salmonids, provided the rough fish competition is removed. Public access sites are needed, both boat and bank.

Area I

Site No. 19

Fish Populations

Number Gill Net Sets 6

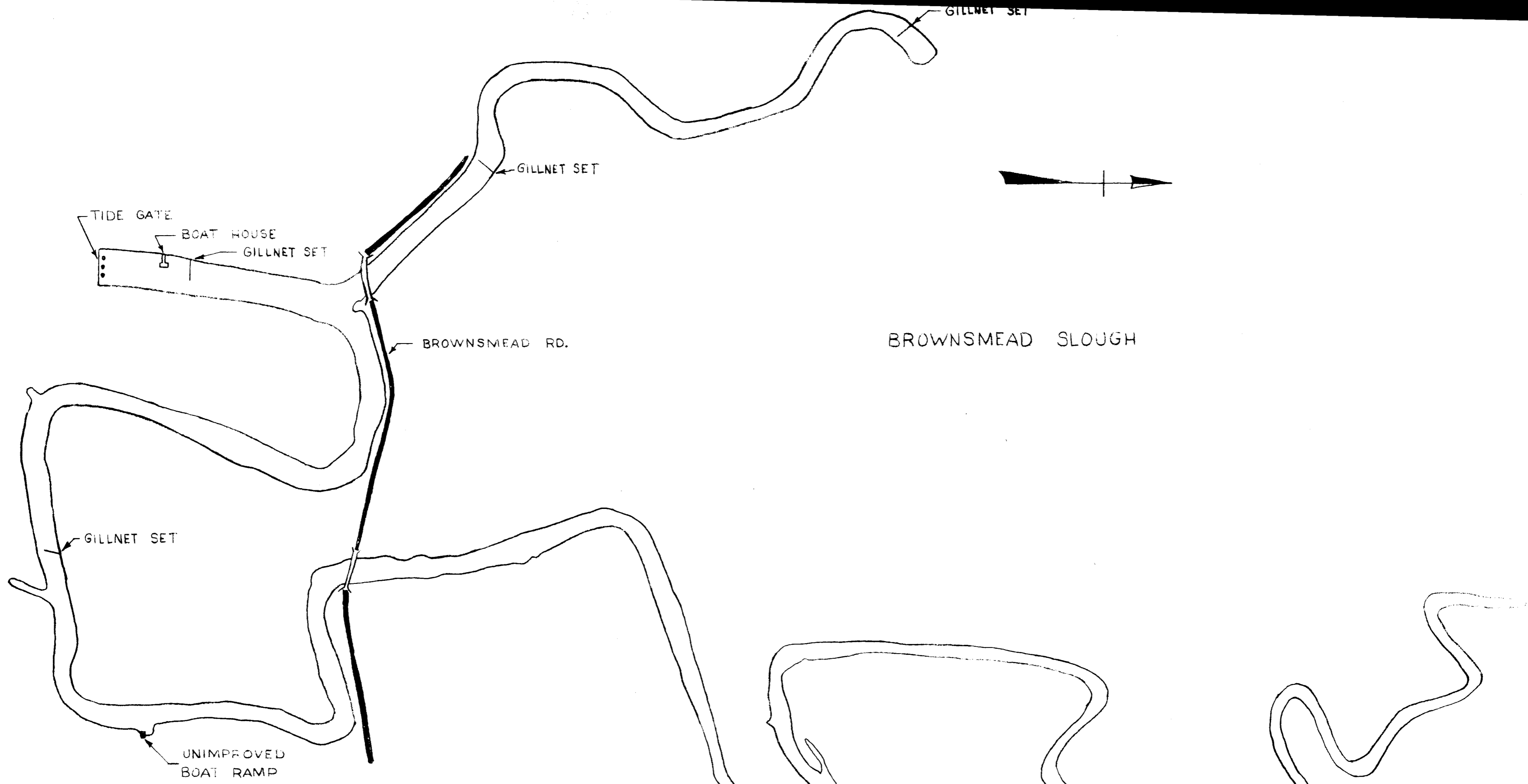
Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	50	5.0- 9.0	6.8	31.3	7.0	31	62
BC	6	6.0- 7.0	6.5	3.8	7.0	4	67
BrB	5	5.0-13.0	10.4	3.1	7.0	4	80
YB	8	6.0-10.0	7.5	5.0	7.0	6	75
Bg	4	4.0- 6.0	5.0	2.5	5.0	2	50
YP	40	5.0- 6.0	5.3	25.0	7.0	0	0
CRC	31	7.0-10.0	8.0	19.4	-	-	-
CSu	14	6.0-17.0	12.7	8.7	-	-	-
Cp	1	-	12.0	0.6	-	-	-
Sq	1	-	14.0	0.6	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		41
Temperature (°F.)	44	72
Dissolved Oxygen (ppm)	9	10
pH	6.7	7.4
Turbidity (ppm)	0	35

Sketch

See foldout sketch.



GILLNET SET

GILLNET SET

TIDE GATE

BOAT HOUSE

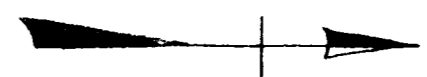
GILLNET SET

BROWNSMEAD RD.

BROWNSMEAD SLOUGH

GILLNET SET

UNIMPROVED
BOAT RAMP



Area I

Site No. 18

Name Westport Slough

Date Surveyed June 16, 1970

Description

This is an extensive slough area with flat terrain. Cover is composed of mud banks, brush, pastureland, and deciduous trees. Much of the area is bordered by steep dike banks, some of which are riprapped. Flows are stable, and a strong tidal influence is present. Water quality ranges from fair to good.

Accessibility

Access is by boat at Westport public ramp or from main Columbia. An abundance of bank access is made available by county roads. Log storage in the lower slough reduces angling area.

Recommendations

This extensive slough has an excellent population of most popular warm-water game fish. The best game fish production is found in the upper slough areas. Rough fish are found in high numbers throughout the slough. Angling pressure is light overall and moderate in some portions. Angling potential of this area is exceptional.

Area I

Site No. 18

Fish Populations

Number Gill Net Sets 8

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	74	4.0-14.0	7.2	28.0	7.0	46	62
BC	3	7.0- 8.0	7.7	1.0	7.0	3	100
YP	9	5.0- 8.0	6.9	3.0	7.0	7	78
LB	2	7.0-20.0	13.5	0.8	8.0	1	50
BrB	1	-	7.0	0.4	7.0	1	100
Wm	2	4.0- 7.0	5.5	0.8	6.0	1	50
YB	8	7.0-12.0	8.6	3.0	7.0	8	100
Bg	5	5.0- 7.0	6.0	2.0	5.0	5	100
WSg	7	11.0-20.0	15.7	3.0	36.0	0	0
CC	1	-	7.0	0.4	-	-	-
Sh	3	5.0- 6.0	5.3	1.0	-	-	-
CRC	71	6.0-10.0	7.1	27.0	-	-	-
CSu	55	6.0-18.0	10.3	21.0	-	-	-
Cp	21	5.0-21.0	12.1	8.0	-	-	-
F	3	-	4.0	1.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		26
Temperature (°F.)	55	67
Dissolved Oxygen (ppm)	8	10
pH	6.5	7.5
Turbidity (ppm)	25	50

Sketch

See foldout sketch.

Area I

Site No. 18

Fish Populations

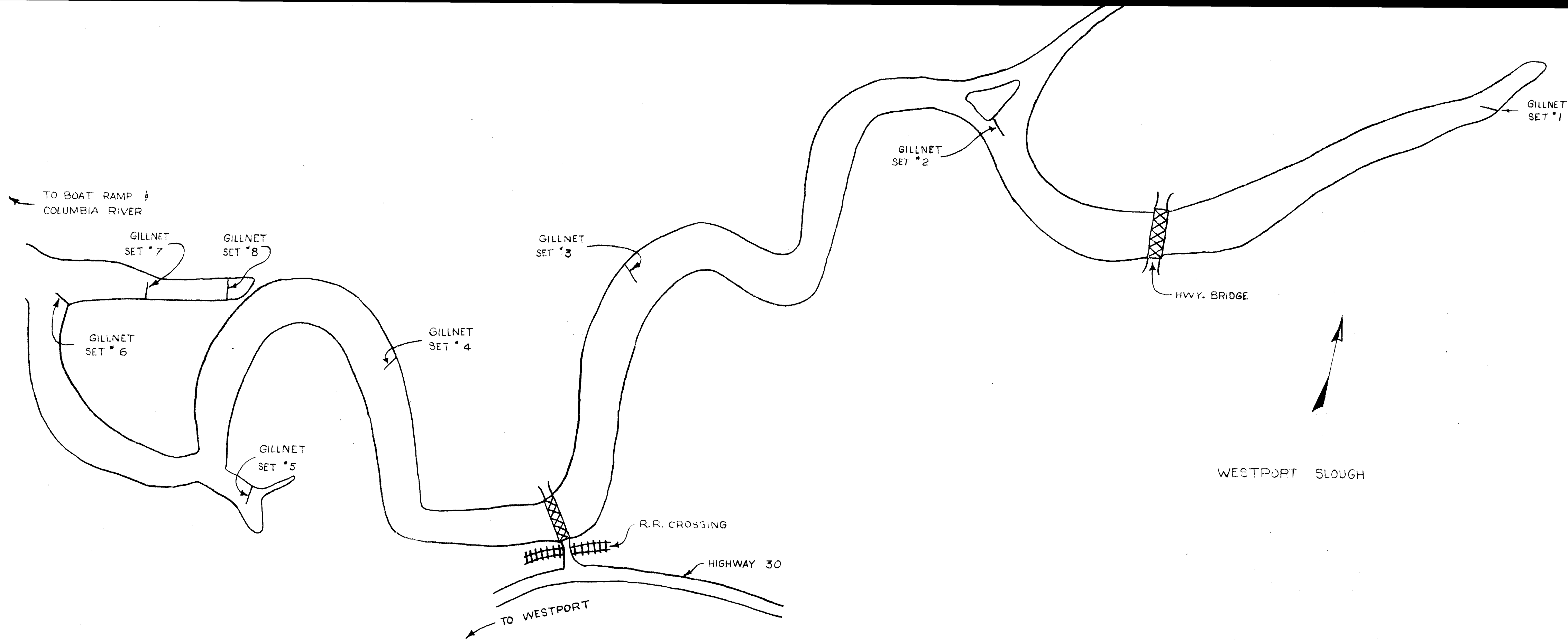
Reset September 29, 1970

Number Gill Net Sets 3

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	59	5.0- 9.0	6.0	45.4	7.0	17	29
BC	5	5.0- 7.0	6.2	3.8	7.0	2	40
YP	17	4.0- 9.0	6.2	13.1	7.0	6	35
Sh	8	8.0- 9.0	8.4	6.2	-	-	-
Bg	2	4.0- 6.0	5.0	1.5	5.0	1	50
WSg	1	-	11.0	0.8	36.0	0	0
F	2	4.0- 5.0	4.5	1.5	-	-	-
Cp	4	7.0-18.0	13.5	3.1	-	-	-
CSu	14	9.0-17.0	14.2	10.8	-	-	-
CRC	18	6.0-13.0	8.6	13.8	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		
Temperature (°F.)		
Dissolved Oxygen (ppm)		
pH		
Turbidity (ppm)		



Area I

Site No. 18

Name Magruder Slough (behind tide gate)

Date Surveyed November 6, 1970

Description

The terrain is flat. Cover consists of pastureland, brush, and mud banks. Banks are steep dike type. Flows are stable with no tidal influence. Water quality is fair.

Accessibility

Bank access is through private land and along county road. Boat access is available by small boat. No boat ramps are present.

Recommendations

A good population of game fish is present. This slough offers some angling potential. Competition from rough fish appears to be minimal. Angling pressure is light. Much of the available slough area is chopped with aquatic vegetation which limits angling and boat access.

Fish Populations

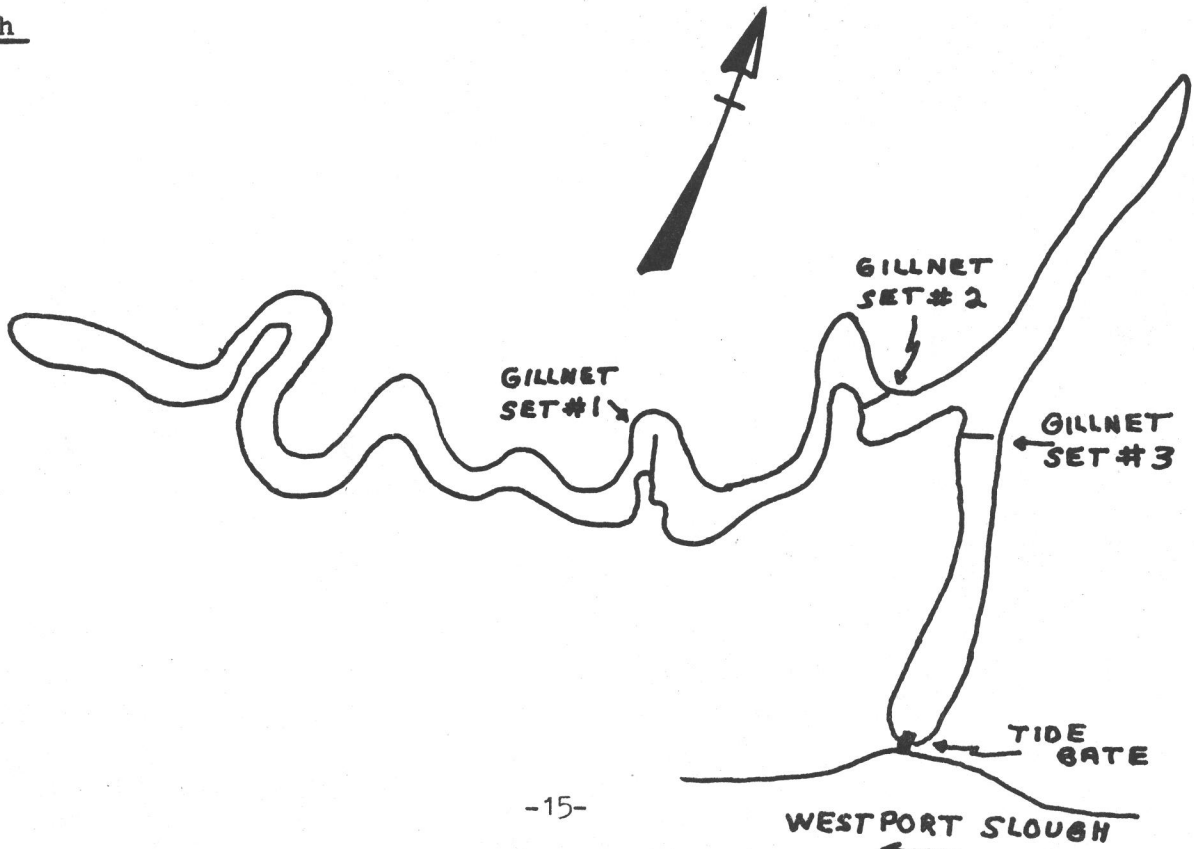
Number Gill Net Sets 3

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
YB	26	6.9- 9.0	7.3	36.0	7.0	23	88
Bg	17	5.0- 7.0	5.4	24.0	5.0	17	100
BC	13	5.0- 9.0	6.8	18.0	7.0	10	77
WC	8	7.0- 8.0	7.4	11.0	7.0	8	100
YP	2	7.0- 8.0	7.0	3.0	7.0	2	100
CRC	5	9.0-11.0	10.0	7.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		15
Temperature (°F.)	51	54
Dissolved Oxygen (ppm)	5	10
pH	7	8
Turbidity (ppm)	0	0

Sketch



Area I

Site No. 17

Name Dike Slough

Date Surveyed June 9, 1970

Description

The terrain is flat. Cover is composed of mud banks, brush, and deciduous trees. Flows are stable except during spring runoff. A strong tidal influence is present. Water quality is fair.

Accessibility

Access is by boat from Wallace Slough. Bank access is difficult because of brush. Bank access is from county road and private land.

Recommendations

A fair population of game fish is present, but rough fish are dominant. Shallow water and competition from rough fish limit the productivity of this area. Angling pressure is light.

Area I

Site No. 17

Fish Populations

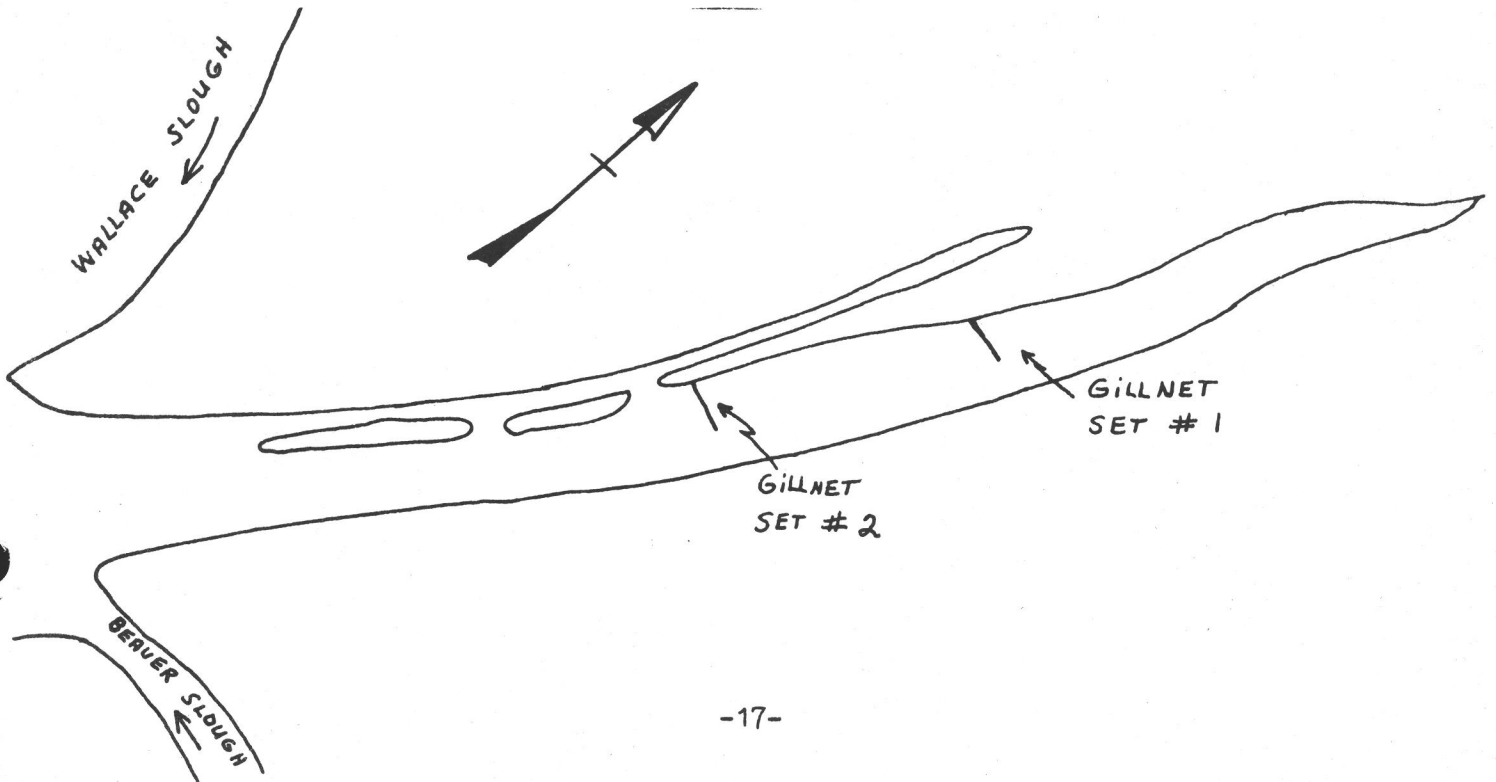
Number Gill Net Sets 2

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
BC	1	-	6.0	2.0	7.0	0	0
WC	1	-	7.0	2.0	7.0	1	100
LB	1	-	8.0	2.0	8.0	1	100
CRC	22	6.0-9.0	7.3	48.0	-	-	-
CSu	15	5.0-14.0	9.0	33.0	-	-	-
Cp	1	-	11.0	2.0	-	-	-
Sq	5	9.0-12.0	10.5	11.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		8
Temperature (°F.)	63	68
Dissolved Oxygen (ppm)	7	10
pH	6.5	7.4
Turbidity (ppm)	25	25

Sketch



Area I

Site No. 17

Name Clatskanie Slough (behind tide gates)

Date Surveyed August 14, 1970

Description

The terrain is flat. Cover consists of mud banks, pastureland, brush, and deciduous trees. The majority of the slough is bordered by steep dike banks. Flows are stable with no tidal influence. Water quality is fair.

Accessibility

Both boat and bank access is limited due to private land. No boat ramps are found on the slough. Several bridges provide bank access areas.

Recommendations

A good population of game fish is present, and rough fish are abundant. Some species of game fish exhibit stunted growth. Angling pressure is light. The angling potential of this slough is good, but better public access is needed to utilize the potential.

Area ISite No. 17Fish PopulationsNumber Gill Net Sets 6

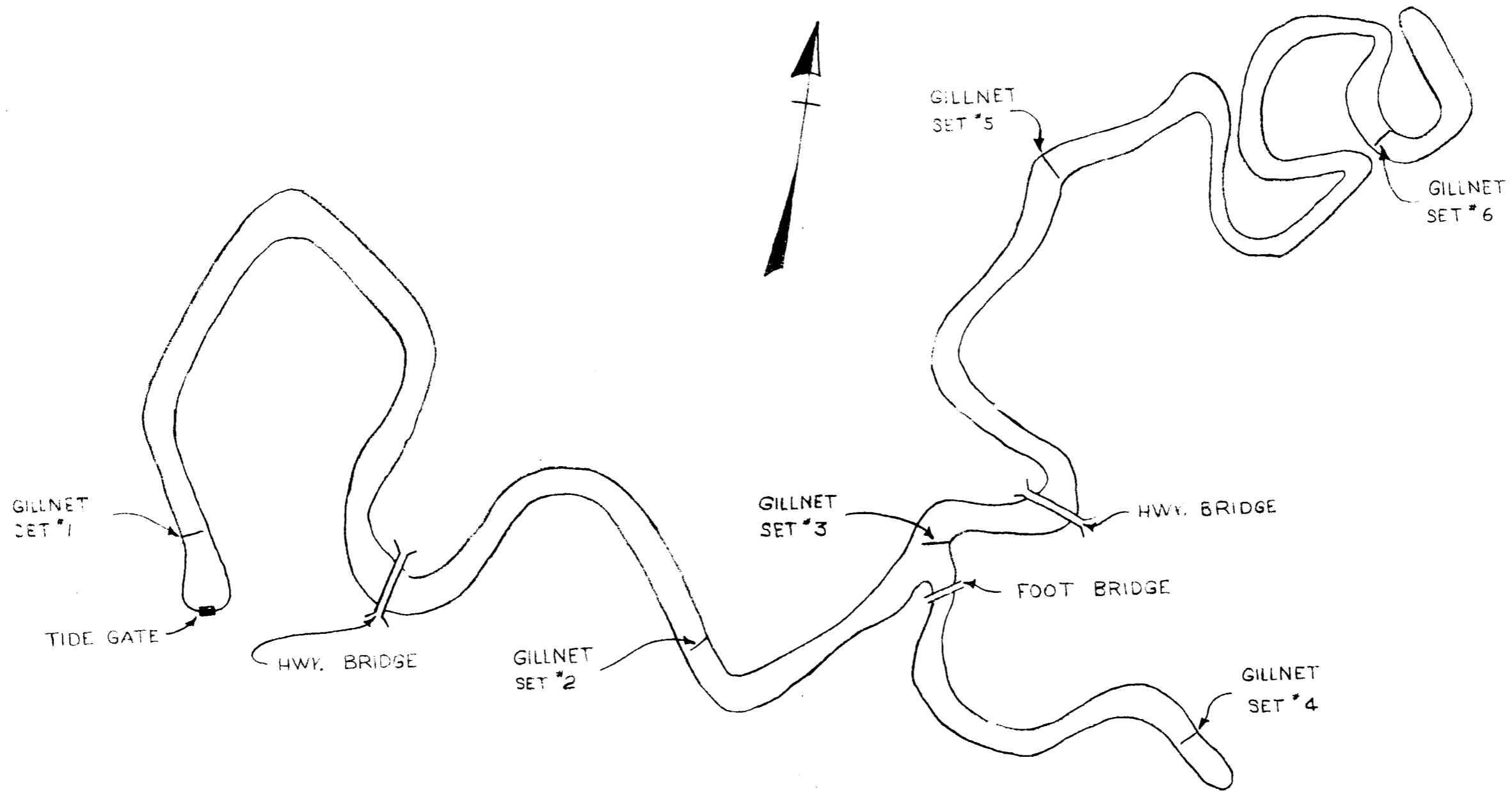
Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	87	4.0- 9.0	6.9	35.0	7.0	65	75
BC	3	5.0- 6.0	5.7	1.2	7.0	0	0
YP	14	5.0- 7.0	5.9	5.5	7.0	1	7
Bg	17	4.0- 7.0	5.5	6.7	5.0	16	94
LB	2	13.0-15.0	14.0	0.8	8.0	2	100
BrB	5	8.0- 9.0	8.8	2.0	7.0	5	100
YB	105	4.0-10.0	6.7	42.0	7.0	57	54
Cp	16	8.0-15.0	12.6	6.3	-	-	-
CSu	3	17.0-21.0	18.3	1.2	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		21
Temperature (°F.)	57	73
Dissolved Oxygen (ppm)	8	10
pH	6.9	7.5
Turbidity (ppm)	25	30

Sketch

See foldout sketch.



CLATSKANIE SLOUGH
(BEHIND TIDE GATE)

Area I

Site No. 17. 16

Name Beaver Slough Complex

Date Surveyed June 9 to June 11, 1970

Description

This is a large slough complex with flat terrain. Much of the slough is bordered by steep-banked dikes. Cover is composed of mud banks, brush, pastureland, and deciduous trees. Much of the dike bank is riprap. Flows are stable and a strong tidal influence is present. Water quality ranges from good to poor.

Accessibility

Access is by boat from Wallace Slough and the Clatskanie River. Bank access is available from county roads and across private land. Log rafts reduce boat access in some portions.

Recommendations:

A good population of game fish is present, but their distribution is spotty. Rough fish are abundant throughout the complex. Angling pressure is generally light, although some areas receive moderate pressure. The entire area offers good potential for warm-water angling. A potential fishery for adult shad exists. The area can use more angling pressure.

Area ISite No. 17,16Fish PopulationsNumber Gill Net Sets 12

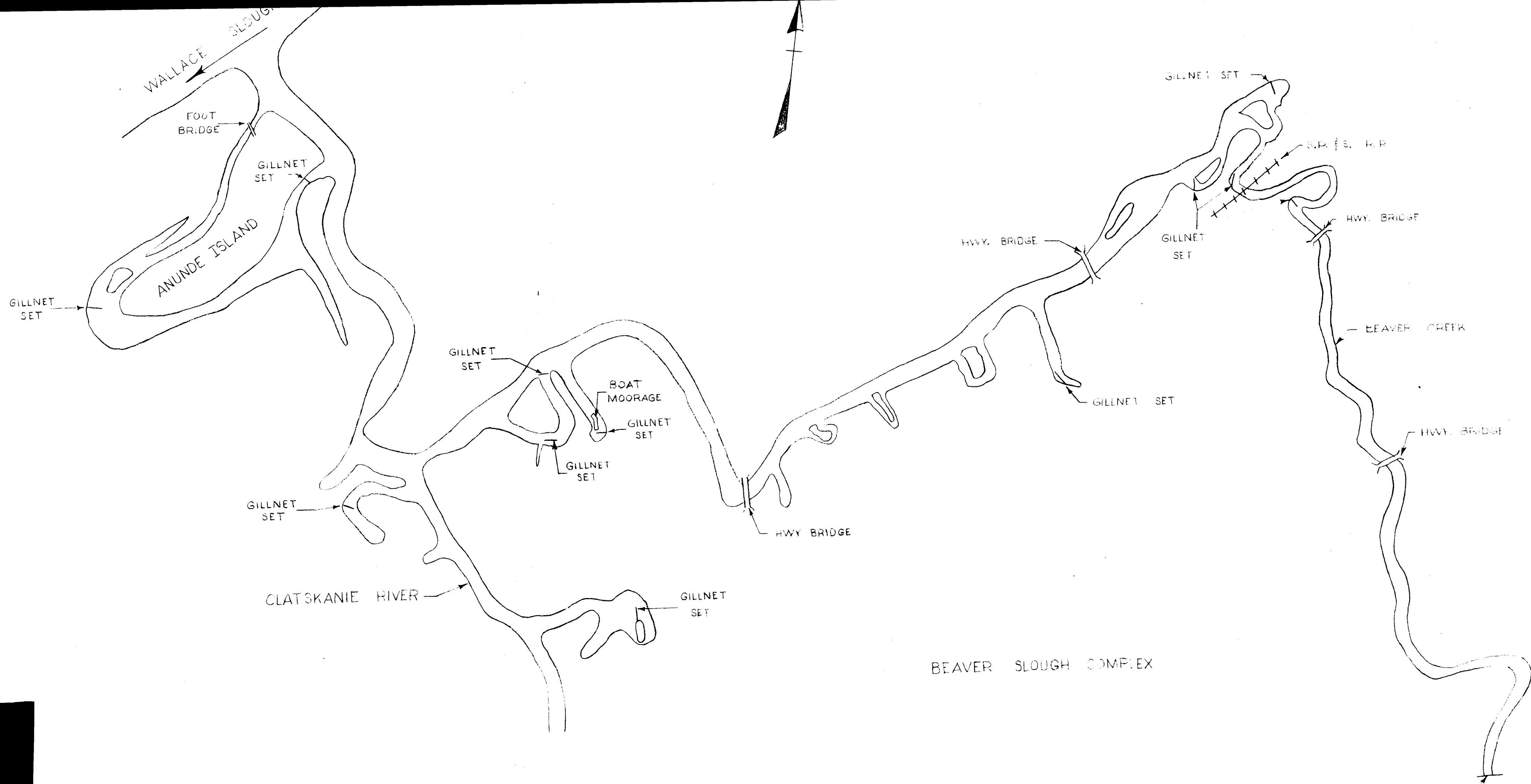
Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	41	4.0- 9.0	6.8	13.0	7.0	22	54
BC	5	4.0- 8.0	6.4	2.0	7.0	3	60
YP	9	5.0- 8.0	7.3	3.0	7.0	8	89
Wm	1	-	8.0	0.3	6.0	1	100
YB	1	-	7.0	0.3	7.0	1	100
Bg	1	-	3.0	0.3	5.0	0	0
CRC	155	6.0-10.0	7.0	48.0	-	-	-
CSu	66	6.0-16.0	11.2	20.0	-	-	-
Cp	16	5.0-18.0	10.3	5.0	-	-	-
Sq	17	8.0-16.0	11.2	5.0	-	-	-
Sh	11	5.0-19.0	7.7	3.0	-	-	-
F	2	-	4.0	0.6	-	-	-
Cot	1	-	5.0	0.3	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		21
Temperature (°F.)	51	68
Dissolved Oxygen (ppm)	7	11
pH	6.6	8.3
Turbidity (ppm)	5	45

Sketch

See foldout sketch.



BEAVER SLOUGH COMPLEX

END OF TIDE

Area I

Site No. 15

Name Johns Slough

Date Surveyed June 2, 1970

Description

The slough is bordered by steep dike banks. Cover consists of brush and pastureland. Flows are stable, and a strong tidal influence is present. Water quality is fair.

Accessibility

Access by boat is from Bradbury Slough, and bank access is from county road and across private land.

Recommendations

Shad were the only game fish observed during the survey. Other species of game fish may be available during certain times of the year. Rough fish are present, but suitable habitat exists for warm-water game fish. More angling pressure and survey work are needed to determine the angling potential.

Area I

Site No. 15

Fish Populations

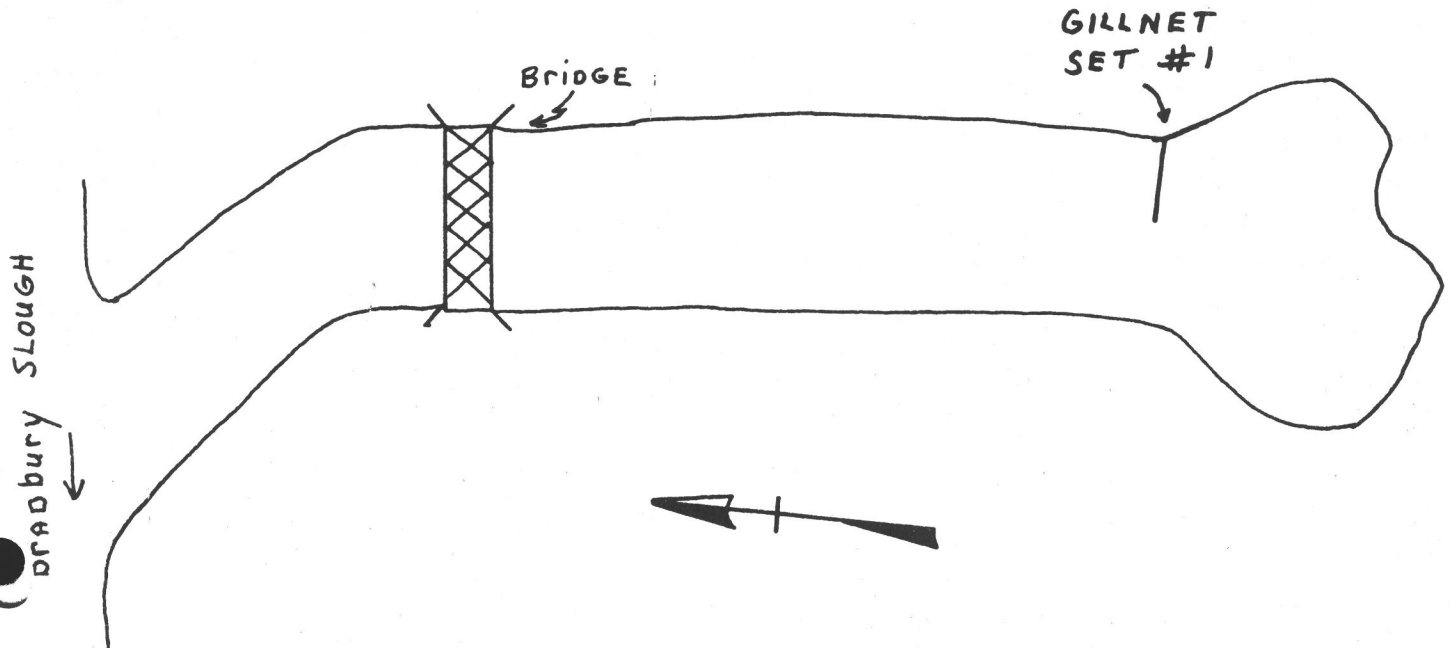
Number Gill Net Sets 1

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
CRC	3	6.0- 8.0	7.0	21.0	-	-	-
Sq	3	7.0-17.0	10.7	21.0	-	-	-
Sh	8	5.0- 6.0	5.3	58.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		13
Temperature (°F.)	61	70
Dissolved Oxygen (ppm)	10	10
pH	7.4	7.4
Turbidity (ppm)	12	12

Sketch



Area I

Site No. 14

Name Dead-End Slough

Date Surveyed June 2, 1970

Description

This is a small slough bordered by steep dike banks. Cover consists of brush and pastureland. Water flow is stable, and a strong tidal influence is present. Water quality is fair.

Accessibility

Access is by boat from Bradbury Slough. Limited bank access is across private land.

Recommendations

A small game fish population exists, but rough fish dominate. Angling pressure is light. The angling potential of this slough is rated fair.

Area I

Site No. 14

Fish Populations

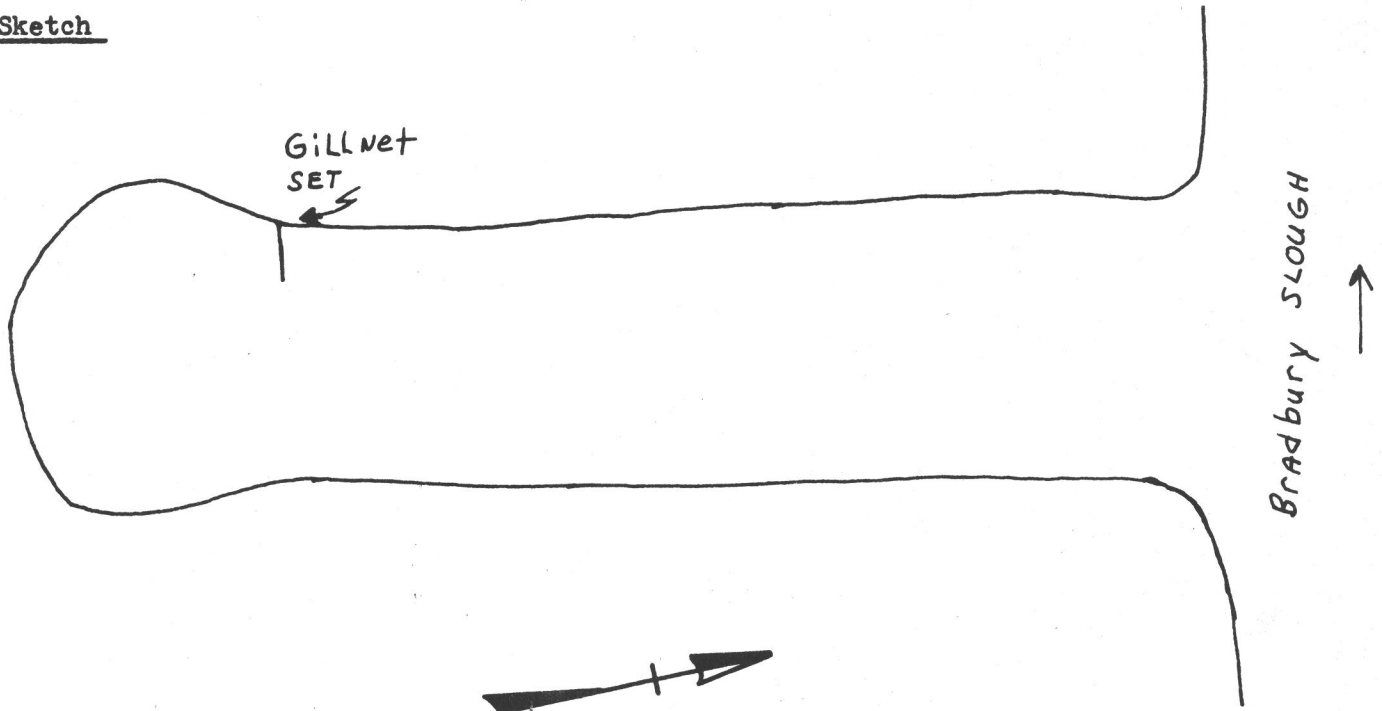
Number Gill Net Sets 1

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	
		Range	Average			Number	Percent
YB	1	-	8.0	7.0	7.0	1	100
WC	1	-	5.0	7.0	7.0	0	0
CRC	13	6.0-8.0	6.7	86.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		8
Temperature (°F.)	59	69
Dissolved Oxygen (ppm)	10	10
pH	7.1	7.1
Turbidity (ppm)	15	15

Sketch



Area I

Site No. 13

Name Crims Island Slough

Date Surveyed June 2, 1970

Description

This is a relatively large slough complex with flat terrain and cover consisting of sand, mud banks, grassey areas, pastureland, cottonwood trees, and brush. Flows are stable except during spring runoff. A strong tidal influence is present. Water quality is fair.

Accessibility

Access is by boat from the main Columbia River. This area has both boat and bank angling areas.

Recommendations

A fair population of game fish is present, although rough fish dominate. Angling pressure is light. This slough area may contain good populations of game fish during certain periods of the year. More angling pressure is needed to determine the full potential of this area.

Area I

Site No. 13

Fish Populations

Number Gill Net Sets 2

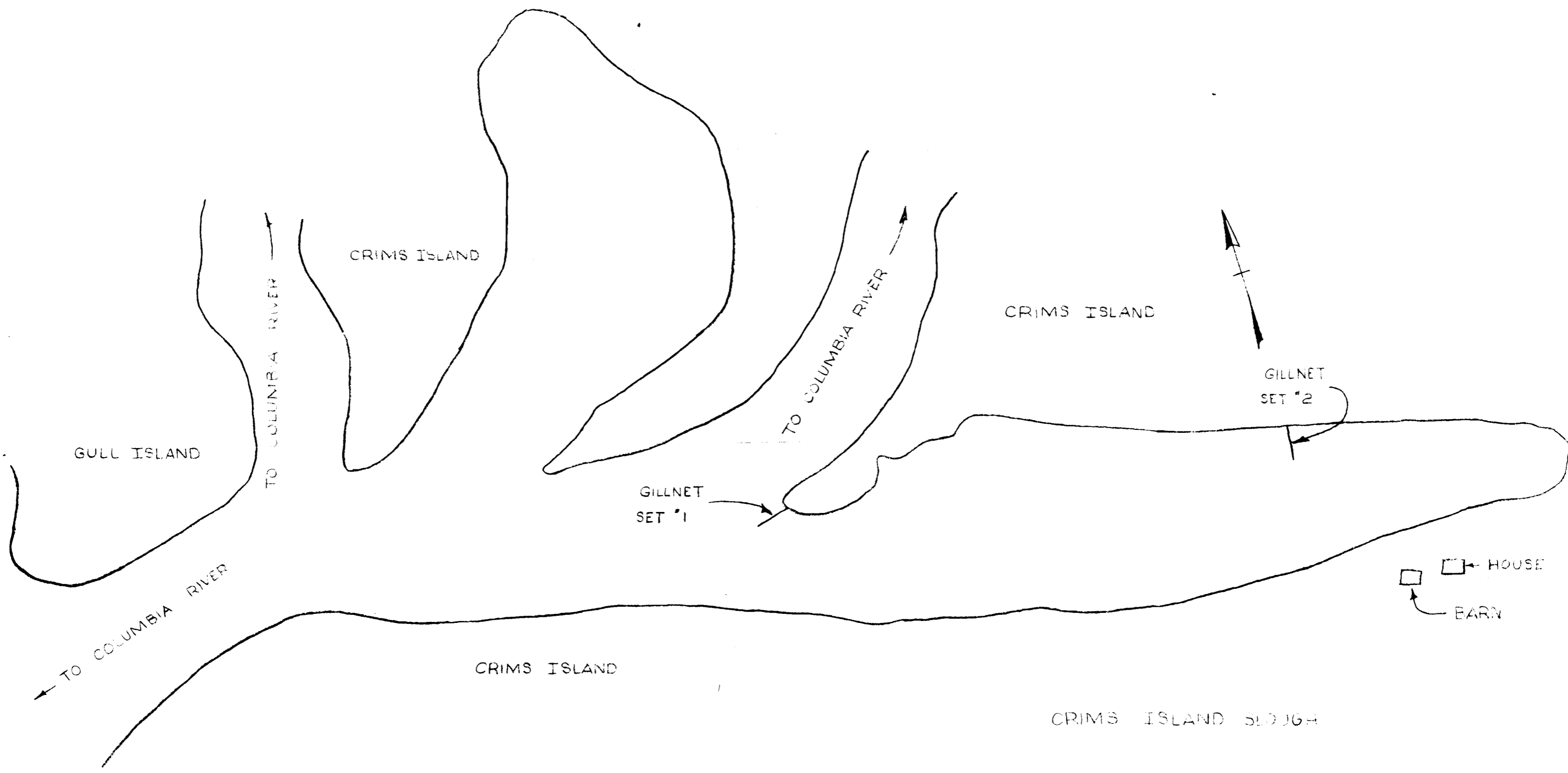
Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	4	4.0-10.0	7.5	3.0	7.0	3	75
BC	4	7.0- 8.0	7.8	3.0	7.0	4	100
CRC	51	6.0-11.0	7.3	40.0	-	-	-
CSu	34	8.0-17.0	11.4	27.0	-	-	-
YP	4	5.0- 9.0	7.0	3.0	7.0	2	50
Cp	9	4.0-12.0	6.7	7.0	-	-	-
Sq	20	8.0-16.0	12.4	16.0	-	-	-
F	1	-	4.0	1.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		28
Temperature (°F.)	59	75
Dissolved Oxygen (ppm)	10	10
pH	7.4	7.5
Turbidity (ppm)	13	20

Sketch

See foldout sketch.



Area I

Site No. 12

Name Mayger Slough

Date Surveyed May 29, 1970

Description

The terrain is flat. Cover consists of mud banks, brush, and grassey areas. Flows are stable except during spring runoff. A strong tidal influence is present. Water quality is fair.

Accessibility

Access is primarily by boat from the main Columbia River. Bank access is limited.

Recommendations

A small population of warm-water game fish exists, but rough fish dominate. This area offers little angling potential.

Area I

Site No. 12

Fish Populations

Number Gill Net Sets 1

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
BC	3	6.0- 7.0	6.7	4.0	7.0	2	67
YP	2	5.0-11.0	8.0	3.0	7.0	1	50
CRC	49	6.0-10.0	7.2	72.0	-	-	-
CSu	10	7.0-18.0	11.0	15.0	-	-	-
Sq	3	-	8.0	4.0	-	-	-
trout-perch	1	-	4.0	2.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		4
Temperature (°F.)	62	68
Dissolved Oxygen (ppm)	10.5	10.5
pH	7.5	7.5
Turbidity (ppm)	22	22

Sketch

See full page sketch.

COLUMBIA R.



GILL NET SET #1



MAYGER SLOUGH

Area II

This area contains the second largest amount of slough area on the lower Columbia. Many of the sloughs surveyed in Area II were found to have little, if any, angling potential. Shallow water and an abundance of rough fish species limit the productivity of several sloughs. Cunningham Slough in the upper portion of Area II supports the best population of game fish. Rinearson, Prescott, Goat Island-Deer Island complex, and Willow Bar Sloughs contain adequate populations of game fish. Access is primarily by boat, although limited bank access is available for most sloughs surveyed. As in Area I, improved bank and boat access is needed.

Area II

Site No. 11

Name Lower Lord Island Slough

Date Surveyed May 29, 1970

Description

The terrain is flat. Cover consists of sand, mud, brush, cottonwood trees, and swampy areas. Flows are stable except during spring runoff. A strong tidal influence is present. Water quality is fair.

Accessibility

Access is by boat only from the main Columbia River or Rinearson Slough.

Recommendations

This area has little value for warm-water angling. Large populations of competing rough fish and insufficient depth are limiting factors. Only one yellow perch was collected during the survey.

Area II

Site No. 11

Fish Populations

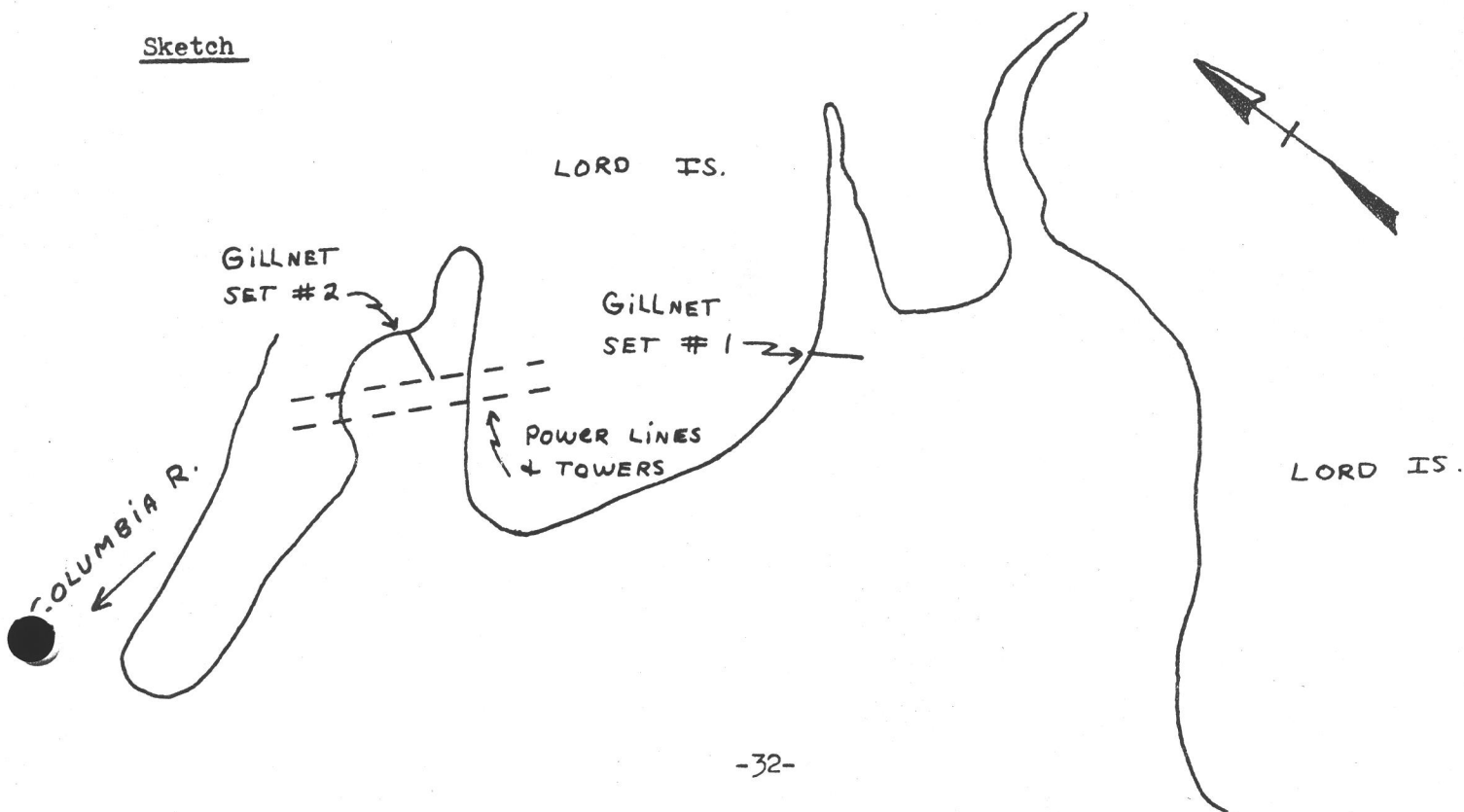
Number Gill Net Sets 2

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	
		Range	Average			Number	Percent
YP	1	-	9.0	1.0	7.0	1	100
CSu	47	6.0-18.0	13.4	43.0	-	-	-
CRC	45	6.0-10.0	7.8	41.0	-	-	-
Cp	3	16.0-18.0	16.7	3.0	-	-	-
Sq	12	7.0-13.0	10.5	11.0	-	-	-
F	1	-	5.0	1.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		7
Temperature (°F.)	58	60
Dissolved Oxygen (ppm)	8.5	8.5
pH	7.4	7.4
Turbidity (ppm)	3	3

Sketch



Area II

Site No. 10

Name Upper Lord Island Slough

Date Surveyed May 28, 1970

Description

The terrain is flat with cover consisting of sand, brush, cottonwood trees, and swampy areas. Flows are stable except during spring runoff. A strong tidal influence is present. Water quality is only fair.

Accessibility

Access is by boat only from the main Columbia River or Rinearson Slough.

Recommendations

This slough offers little potential for warm-water game fish. Insufficient depth and competition from rough fish are the major limiting factors. No game fish were collected or observed during the survey.

Area II

Site No. 10

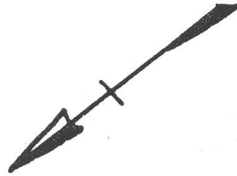
Fish Populations

Number Gill Net Sets 1

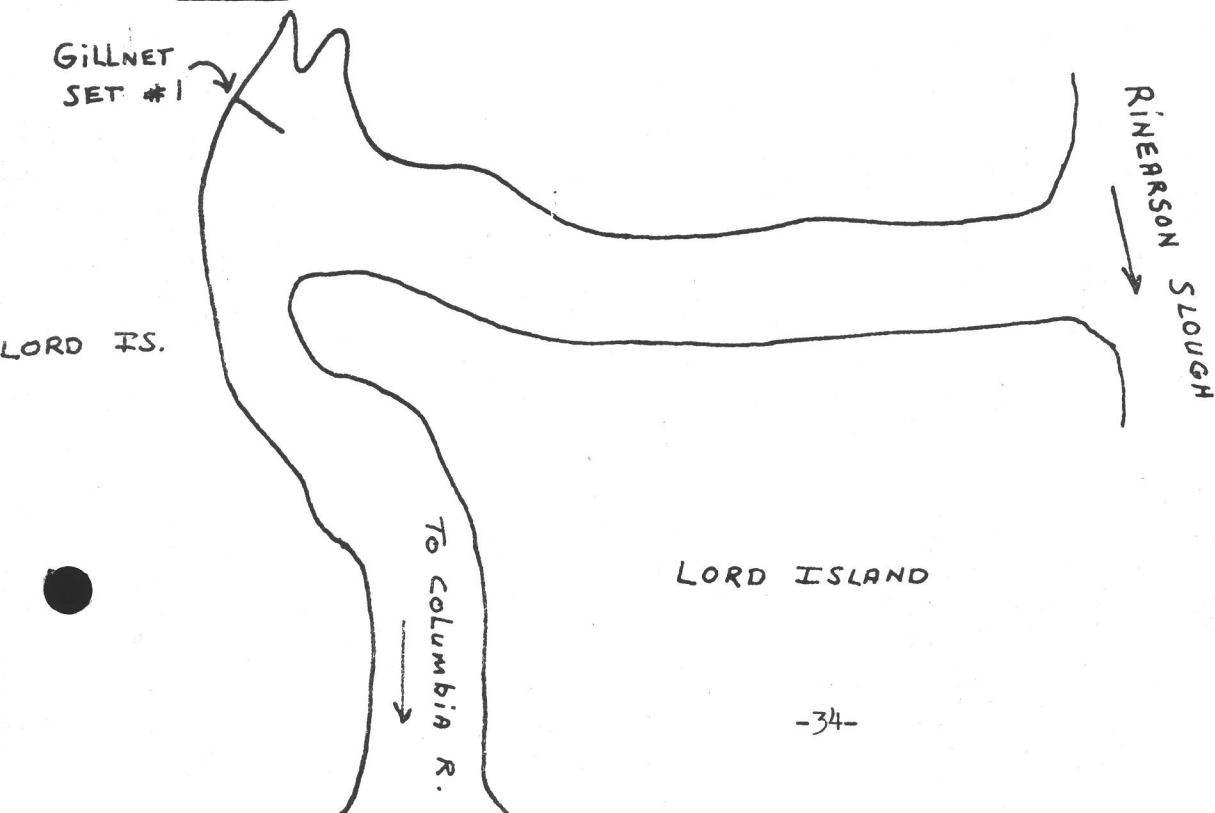
Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
CRC	30	6.0-10.0	7.2	83.0	-	-	-
CSu	4	8.0-12.0	9.5	11.0	-	-	-
Cp	1	-	12.0	3.0	-	-	-
Sq	1	-	9.0	3.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		7
Temperature (°F.)	58	58
Dissolved Oxygen (ppm)	11	11
pH	8	8
Turbidity (ppm)	25	25



Sketch



Area II

Site No. 9

Name Rinearson Slough

Date Surveyed May 29, 1970

Description

The terrain is flat. Cover consists of mud banks, brush, and deciduous trees. Flows are stable except during spring runoff. A strong tidal influence is present. Water quality is fair.

Accessibility

Access is by boat from the main Columbia. Bank access is across private land.

Recommendations

A fair population of game fish is present, but rough fish are dominant. Angling pressure is moderate. Good game fish habitat is present, but rough fish limit the productivity. This slough has good angling potential and can use more angling effort.

Fish Populations

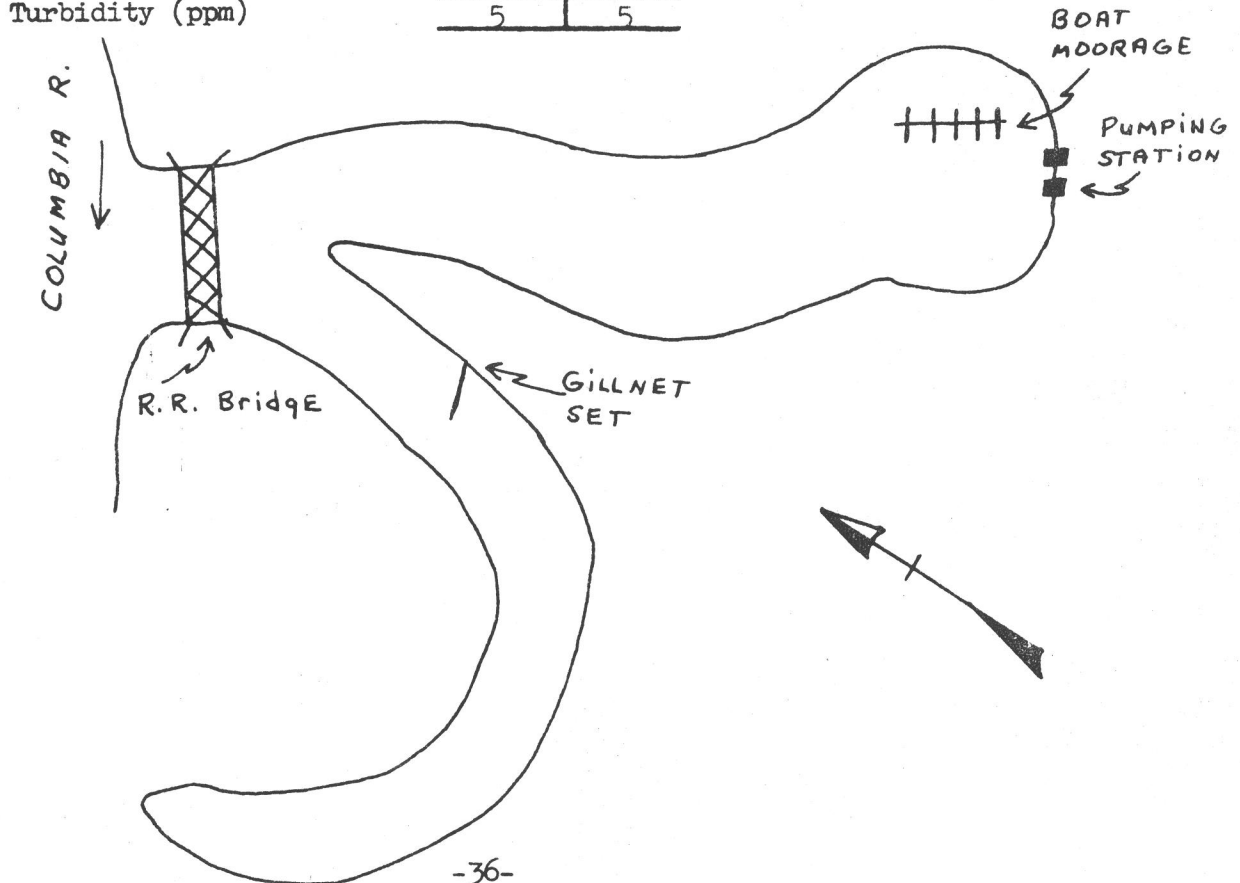
Number Gill Net Sets 1

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	
		Range	Average			Number	Percent
WC	4	7.0-8.0	7.3	10.0	7.0	4	100
LB	2	6.0-8.0	7.0	5.0	8.0	1	50
Wm	1	-	5.0	2.0	6.0	0	0
CRC	31	6.0-9.0	7.3	78.0	-	-	-
CSu	2	-	13.0	5.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		13
Temperature (°F.)	57	61
Dissolved Oxygen (ppm)	9.5	9.5
pH	7.2	7.2
Turbidity (ppm)	5	5

Sketch



Area II

Site No. 9

Fish Populations

Reset September 23, 1970

Number Gill Net Sets 1

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	5	4.0- 8.0	5.6	12.2	7.0	1	20
LB	1	-	7.0	2.4	8.0	0	0
YP	4	-	5.0	9.7	7.0	0	0
Bg	4	4.0-5.0	4.3	9.7	5.0	1	25
CRC	22	6.0-10.0	8.4	53.7	-	-	-
CSu	1	-	18.0	2.4	-	-	-
Cp	3	7.0-11.0	8.3	7.3	-	-	-
Cot	1	-	5.0	2.4	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		
Temperature (°F.)		
Dissolved Oxygen (ppm)		
pH		
Turbidity (ppm)		

Area II

Site No. 8

Name Dibblee's Slough

Date Surveyed May 28, 1970

Description

The terrain is flat. Cover is composed of sand and mud banks, brush, grassey areas, and deciduous trees. Flows are stable except during spring runoff. Water quality is fair. A strong tidal influence is present.

Accessibility

Access is by boat from main Columbia. Bank access is available from public roads. Log storage reduces available angling area.

Recommendations

This slough receives moderate angling pressure. A fair population of game fish is present, but rough fish are dominant. The area can support an increase in angling pressure, especially from boat anglers.

Fish Populations

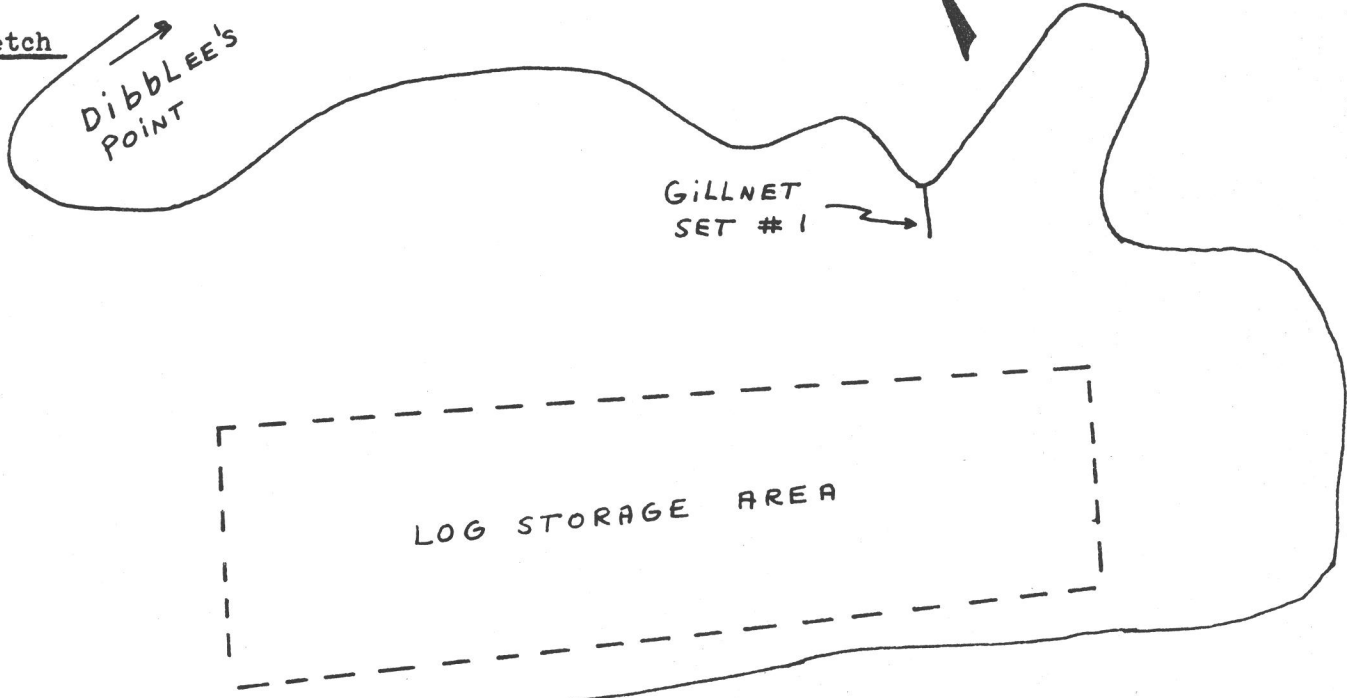
Number Gill Net Sets 1

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	4	8.0- 9.0	8.8	11.0	7.0	4	100
BC	1	-	7.0	3.0	7.0	1	100
BrB	1	-	7.0	3.0	7.0	1	100
YB	1	-	8.0	3.0	7.0	1	100
CSu	25	6.0-17.0	10.8	71.0	-	-	-
CRC	1	-	10.0	3.0	-	-	-
Op	1	-	6.0	3.0	-	-	-
Sq	1	-	9.0	3.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		13
Temperature (°F.)	56	60
Dissolved Oxygen (ppm)	10	10
pH	7.6	7.6
Turbidity (ppm)	2.5	2.5

Sketch



Area II

Site No. 7

Name Prescott Slough

Date Surveyed May 26, 1970

Description

The terrain is flat. Cover consists of mud banks, brush, and swampy areas. Water flows are stable except during spring runoff. A strong tidal influence is present. Water quality is fair.

Accessibility

Boat access is from main Columbia River during higher water periods. Boat access is difficult during late summer and early fall. Bank access is from Highway 30 and county road to Prescott.

Recommendations

A fair population of game fish is present, but rough fish dominate. Angling pressure is moderate to heavy due to easy access. Productivity of this slough is limited by competition from rough fish and lack of good game fish habitat.

Area II

Site No. 7

Fish Populations

Number Gill Net Sets 2

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	
		Range	Average			Percent	Number
WC	7	4.0- 5.0	4.7	8.0	7.0	0	0
BC	3	5.0- 8.0	6.7	3.0	7.0	2	67
YE	1	-	7.0	1.0	7.0	1	100
Bg	1	-	6.0	1.0	5.0	1	100
CRC	54	6.0- 9.0	7.4	61.0	-	-	-
CSu	14	8.0-15.0	10.8	16.0	-	-	-
Cp	7	8.0-15.0	9.9	8.0	-	-	-
Sc	1	-	18.0	1.0	-	-	-
Clm	1	-	8.0	1.0	-	-	-

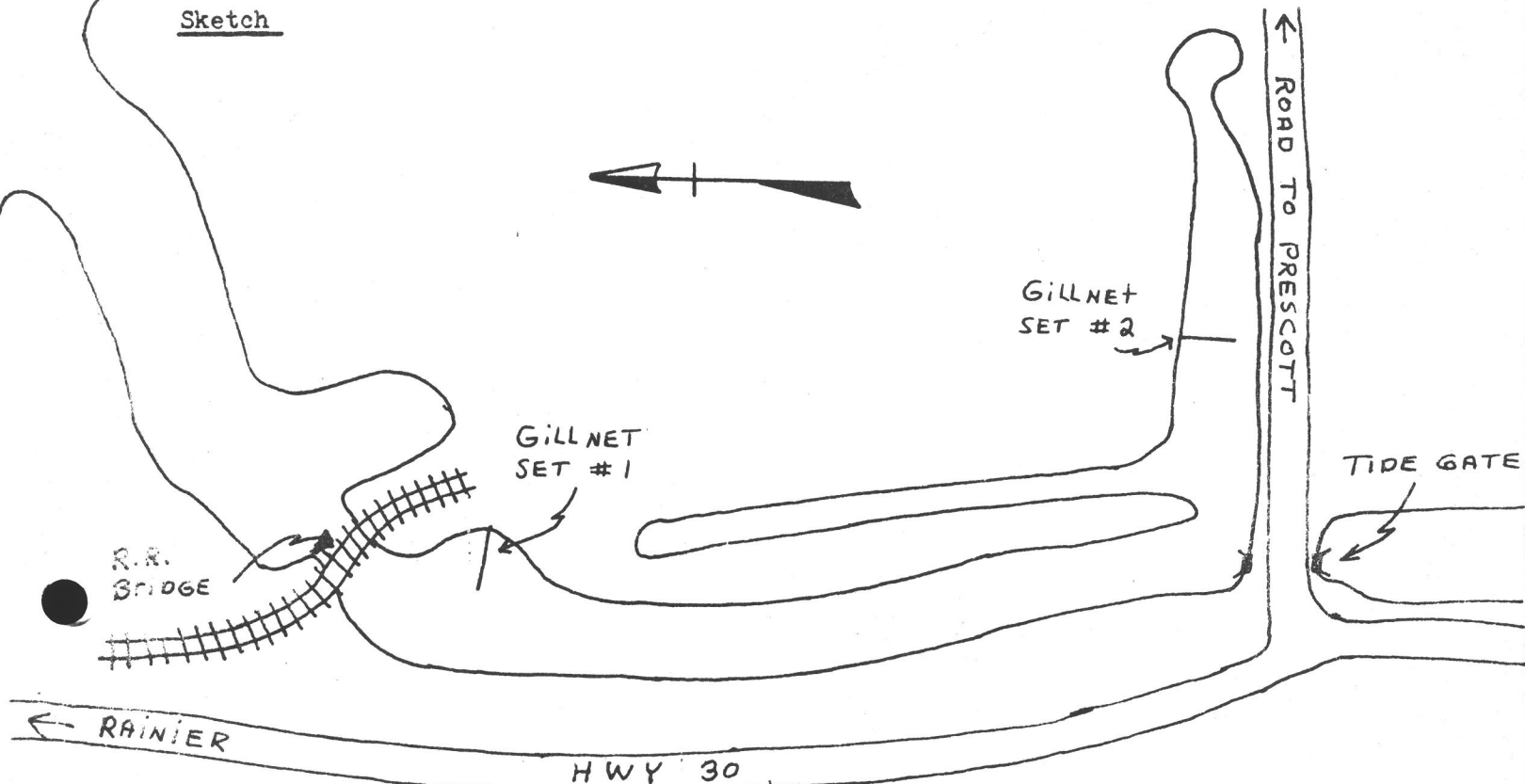
Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		12
Temperature (°F.)	58	63
Dissolved Oxygen (ppm)	9.5	10.0
pH	6.8	7.0
Turbidity (ppm)	5	5

COLUMBIA R.

Depth (feet)
 Temperature (°F.)
 Dissolved Oxygen (ppm)
 pH
 Turbidity (ppm)

Sketch



Area II
 Site No. 7

Fish Populations

Reset September 22, 1970

Number Gill Net Sets 2

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	18	4.0- 6.0	4.9	23.1	7.0	0	0
YB	19	6.0- 9.0	7.9	24.3	7.0	17	89
BrB	4	7.0- 9.0	7.5	5.1	7.0	4	100
Wm	5	4.0- 7.0	5.8	6.4	6.0	4	80
Bg	3	5.0- 8.0	6.7	3.8	5.0	2	67
LB	4	7.0- 9.0	8.0	5.1	8.0	3	75
YP	1	-	6.0	1.3	7.0	0	0
Cp	15	8.0-14.0	10.3	19.1	-	-	-
CRC	5	7.0-10.0	8.8	6.4	-	-	-
CSu	4	6.0-11.0	8.5	5.1	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		
Temperature (°F.)		
Dissolved Oxygen (ppm)		
pH		
Turbidity (ppm)		

Area II

Site No. 6

Name Sandy Island Slough

Date Surveyed May 26, 1970

Description

The terrain is flat. Cover consists of mud banks, cottonwood trees, brush, and grassy areas. Flows are stable except during spring runoff. A strong tidal influence is present. Water quality is fair.

Accessibility

Access is by boat only from the main Columbia River. A private boat ramp at Goble provides good access.

Recommendations

This slough is heavily infested with rough fish. A limited population of game fish exists. Shallow water and poor warm-water game fish habitat lower the angling potential for this area.

Fish Populations

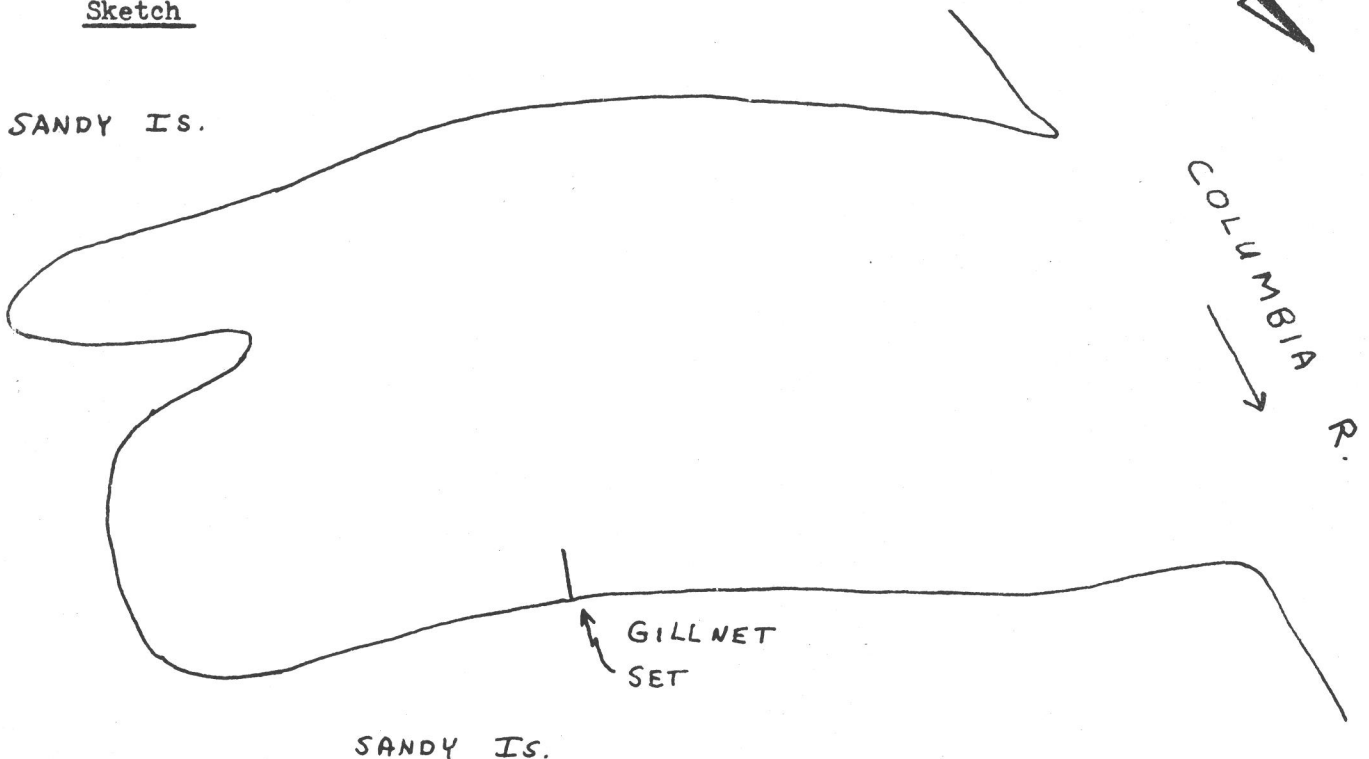
Number Gill Net Sets 1

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
BC	2	5.0- 7.0	6.0	3.0	7.0	1	50
CRC	54	6.0-11.0	7.9	72.0	-	-	-
CSu	6	7.0-11.0	9.2	8.0	-	-	-
Sq	12	9.0-22.0	13.7	16.0	-	-	-
Cp	1	-	24.0	1.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		7
Temperature (°F.)	58	61
Dissolved Oxygen (ppm)	11	11
pH	7.8	7.8
Turbidity (ppm)	0	0

Sketch



SANDY IS.

Area II

Site No. 5

Name Goat Island-Deer Island Slough complex

Date Surveyed May 18, 1970

Description

The terrain is flat. Cover consists of mud and sand banks, brush, deciduous trees, and grassey areas. Flows are stable except during spring runoff. A strong tidal influence is present. Water quality ranges from fair to good.

Accessibility

Boat access is from main Columbia River. Bank access is from Shell Beach or across private land. Log storage limits access to some portions of the slough.

Recommendations

This area contains a good population of game fish. Some portions of the slough abound with rough fish. Angling pressure is moderate in the more accessible areas. The area can use more angling pressure.

Area IISite No. 5Fish PopulationsNumber Gill Net Sets 5

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
YB	3	9.0-12.0	10.0	1.5	7.0	3	100
Wc	24	4.0-11.0	8.0	12.0	7.0	20	83
BC	3	7.0- 8.0	7.3	1.5	7.0	3	100
WSg	2	-	12.0	1.0	36.0	0	0
Wm	1	-	7.0	0.5	6.0	1	100
LB	3	7.0- 9.0	8.0	1.5	8.0	2	67
YP	1	-	5.0	0.5	7.0	0	0
BrB	8	7.0- 9.0	8.3	4.0	7.0	8	100
CRC	59	6.0-10.0	7.2	30.0	-	-	-
CSu	64	7.0-15.0	9.3	32.0	-	-	-
Cp	16	7.0-19.0	10.2	8.0	-	-	-
Sq	14	6.0-16.0	10.6	7.0	-	-	-
F	1	-	6.0	0.5	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		18
Temperature (°F.)	54	61
Dissolved Oxygen (ppm)	10	11
pH	6.7	7.4
Turbidity (ppm)	12	15

Sketch

See attached sketch.

Area II

Site No. 5

Fish Populations

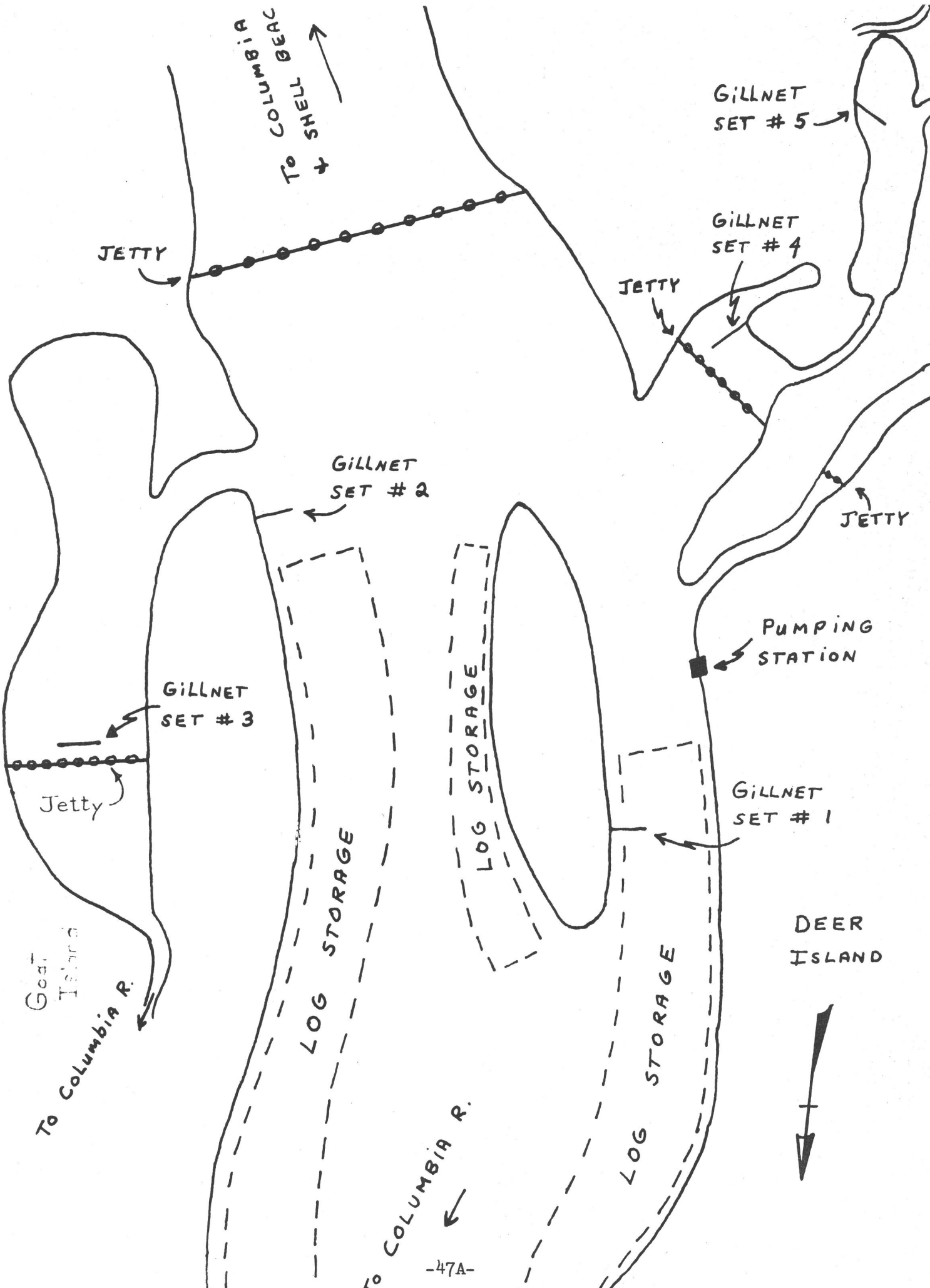
Reset September 22, 1970

Number Gill Net Sets 3

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	
		Range	Average			Percent	Number
WC	61	4.0-11.0	5.7	53.9	7.0	14	23
BrB	2	7.0- 8.0	7.5	1.8	7.0	2	100
YP	1	-	5.0	0.9	7.0	0	0
YB	5	6.0-10.0	7.8	4.4	7.0	4	80
LB	3	5.0- 7.0	5.7	2.7	8.0	0	0
Bg	1	-	7.0	0.9	5.0	1	100
CRC	16	6.0-10.0	8.1	14.2	-	-	-
CSu	10	6.0-17.0	15.1	8.8	-	-	-
Cp	8	7.0-15.0	9.4	7.1	-	-	-
Sq	6	10.0-14.0	11.8	5.3	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		
Temperature (°F.)		
Dissolved Oxygen (ppm)		
pH		
Turbidity (ppm)		



Area II

Site No. 4

Name Cunningham Slough

Date Surveyed May 13, 1970

Description

The terrain is flat. Cover consists of brush, oak and cottonwood trees, and marshy areas. Water flows are stable except during spring runoff. A strong tidal influence is present. Water quality is excellent for warm-water game fish.

Accessibility

Access is primarily by boat from the Multnomah Channel of the Willamette. Bank access is limited as there are no maintained roads into the area.

Recommendations

This slough offers good to excellent angling potential for the popular species of warm-water game fish. Bank access is needed to fully utilize the potential of this area.

Area IISite No. 4Fish PopulationsNumber Gill Net Sets 3

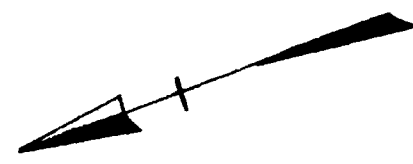
Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
BrB	32	6.0-12.0	8.1	13.0	7.0	29	90
WC	20	6.0-11.0	8.6	8.0	7.0	16	80
BC	15	7.0- 9.0	8.2	6.0	7.0	15	100
YB	7	6.0-11.0	8.0	3.0	7.0	6	86
YP	4	8.0-11.0	9.1	2.0	7.0	4	100
Wm	1	-	6.5	0.4	6.0	1	100
LB	2	8.0-10.0	9.5	0.8	8.0	2	100
Bg	3	6.0- 7.0	7.0	1.0	5.0	3	100
CSu	50	8.0-17.0	11.9	20.0	-	-	-
CRC	65	6.0-10.0	7.6	27.0	-	-	-
Cp	43	7.0-20.0+	12.2	18.0	-	-	-
Sq	1	-	13.0	0.4	-	-	-
Cot	1	-	8.0	0.4	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		22
Temperature (°F.)	55	68
Dissolved Oxygen (ppm)	8	9
pH	6.7	7.0
Turbidity (ppm)	15	50

Sketch

See foldout sketch.



SAUVIE ISLAND

SAUVIE ISLAND

CUNNINGHAM LAKE

GILLNET SET '1

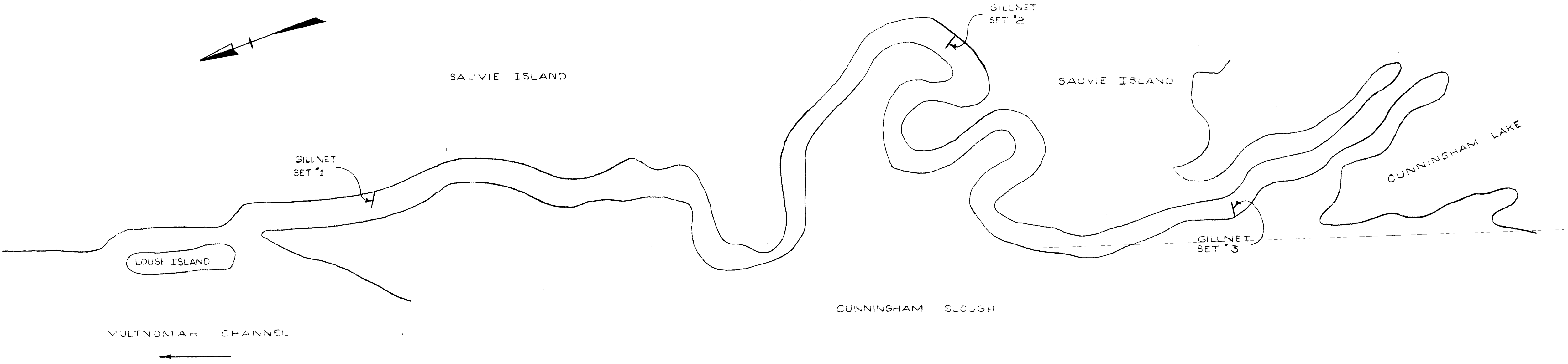
GILLNET SET '2

GILLNET SET '3

LOUSE ISLAND

CUNNINGHAM SLOUGH

MULTNOMAH CHANNEL



Area II

Site No. 3

Name Willow Bar Slough

Date Surveyed June 5, 1970

Description

The terrain is flat. Cover consists of sand, mud banks, brush, and deciduous trees. Flows are stable except during spring runoff. A moderate tidal influence is present. Water quality is fair.

Accessibility

Accessible by boat from the main Columbia River. Bank access is from county road.

Recommendations

A fair to good population of warm-water game fish exists. Angling pressure is moderate. Easy access makes this slough a popular angling area. Large numbers of rough fish limit game fish production.

Area II

Site No. 3

Fish Populations

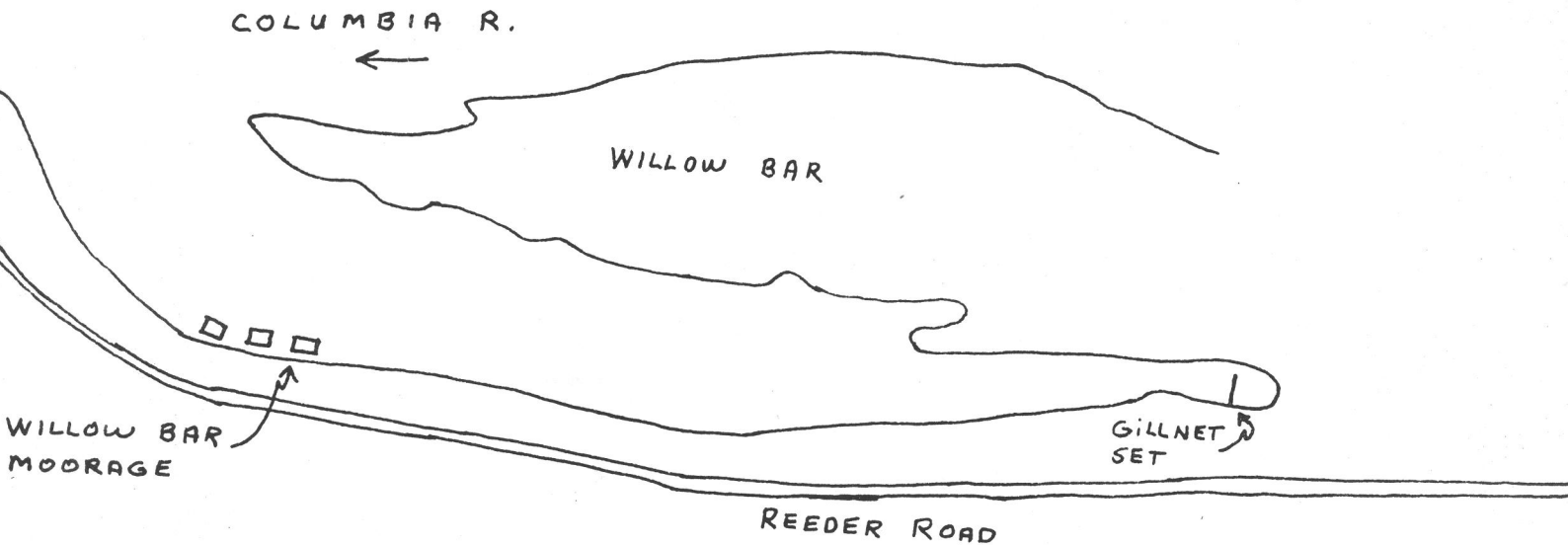
Number Gill Net Sets 1

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
WC	15	4.0- 6.0	5.3	28.0	7.0	0	0
BC	4	5.0- 6.0	5.3	8.0	7.0	0	0
YP	2	-	5.0	4.0	7.0	0	0
CSu	4	9.0-16.0	12.3	8.0	-	-	-
CRC	13	6.0- 7.0	6.6	24.0	-	-	-
Cp	10	8.0-14.0	11.1	19.0	-	-	-
Sq	5	9.0-12.0	10.2	9.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		
Temperature (°F.)		
Dissolved Oxygen (ppm)	8	8
pH	7.3	7.3
Turbidity (ppm)	10	10

Sketch



SAUVIE ISLAND

Area III

This area is characterized by having a small amount of slough area. Only two sloughs were surveyed in Area III. Both Rooster Rock and Government Island Sloughs contain fishable populations of game fish. Access by boat and bank is adequate. Angling pressure is moderate, but the full potential of both sloughs, especially Government Island, has not been explored. Mild tidal influence and strong river currents present in this area of the Columbia may be a factor in limiting the production and distribution of warm-water game fish.

Area III

Site No. 2

Name Government Island Slough

Date Surveyed May 11, 1970

Description

The terrain is flat. Cover consists of sand, cottonwood trees, and pasture areas. Water flows are stable except during spring runoff.

Accessibility

Access is by boat from the Columbia River. Both bank and boat angling are available.

Recommendations

The slough contains a good population of several species of warm-water game fish. Angling pressure is light. This slough appears to have the most angling potential of those surveyed in Area III.

Fish Populations

Number Gill Net Sets 2

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	
		Range	Average			Number	Percent
YP	16	5.0-10.0	7.2	23.0	7.0	10	62
WC	13	5.0-11.0	7.9	19.0	7.0	10	77
BC	4	7.0- 8.0	7.6	6.0	7.0	4	100
BrB	5	8.0-10.0	9.1	7.0	7.0	5	100
YB	3	8.0-10.0	8.8	4.0	7.0	3	100
Bg	1	-	5.0	1.0	5.0	1	100
WSg	1	-	16.5	1.0	36.0	0	0
CSu	17	11.0-16.0	12.9	24.0	-	-	-
Cp	4	6.0-16.0	11.3	6.0	-	-	-
Sq	1	-	12.5	1.0	-	-	-
Clm	1	-	10.5	1.0	-	-	-
CRC	4	8.0-11.0	9.4	6.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		9
Temperature (°F.)	52	55
Dissolved Oxygen (ppm)	12	12
pH	7.5	7.5
Turbidity (ppm)	35	35

Sketch

COLUMBIA R.



DOLPHIN

GILLNET SET # 1

GILLNET SET # 2

GOVERNMENT LAND

Area III

Site No. 1

Name Rooster Rock Slough

Date Surveyed May 5, 1970

Description

The land is flat with gentle sloping banks. Cover consists of sand, cottonwood trees, and grassey areas. Water flows are stable except during spring runoff.

Accessibility

Accessible by boat or bank via Rooster Rock State Park. An adequate two-lane paved boat ramp exists. Good bank fishing areas are available.

Recommendations

This slough provides considerable warm-water angling, especially for brown bullhead catfish. A limited game fish population is present due to competition from undesirable species.

Fish Populations

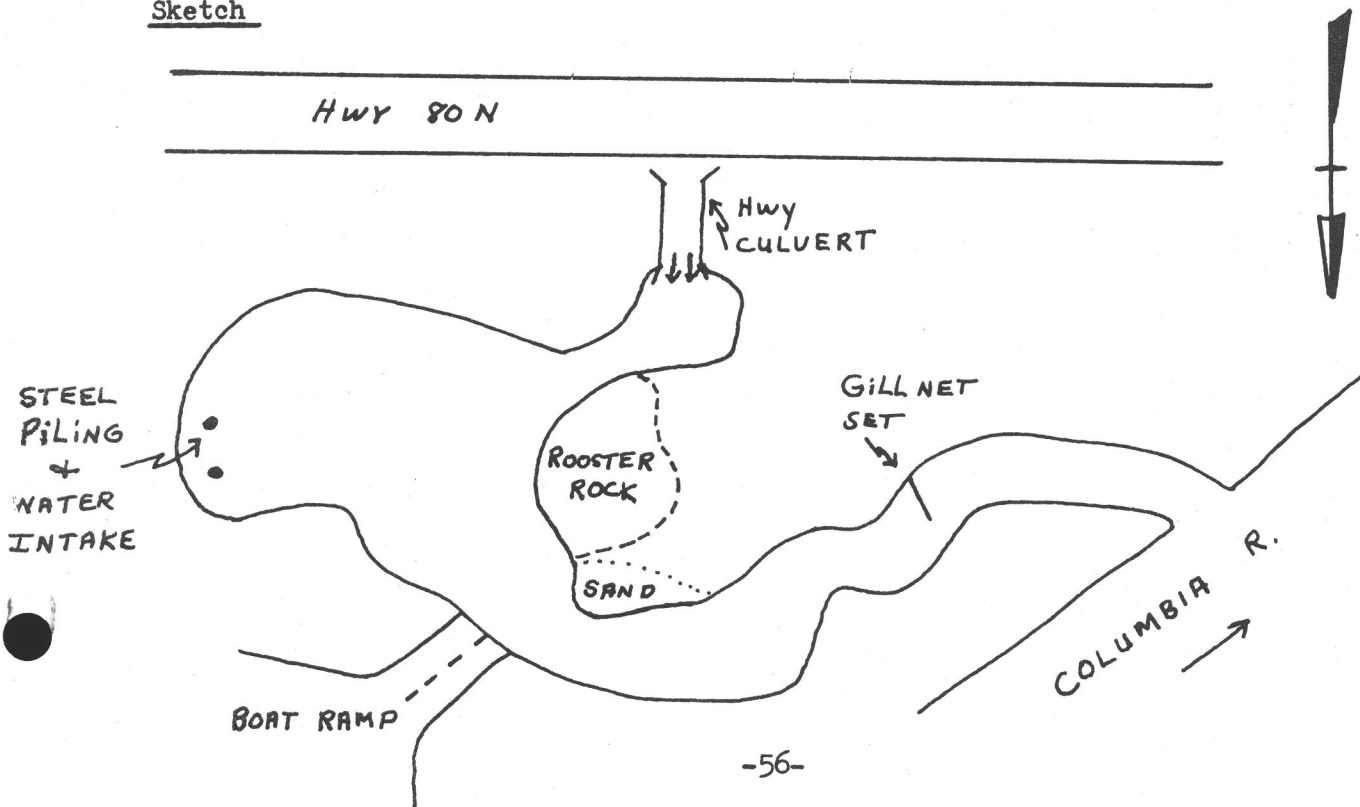
Number Gill Net Sets 1

Species	Number Fish Taken	Length (Inches)		Percent of Total Catch	Minimum Acceptable Size (Inches)	Number Above	Percent
		Range	Average				
BrB	5	6.0-13.0	8.7	22.0	7.0	4	80
YP	1	-	5.0	5.0	7.0	0	0
WSg	2	11.0-16.0	14.0	9.0	36.0	0	0
CSu	5	7.0-14.0	11.0	22.0	-	-	-
CRC	3	6.0- 9.0	7.7	14.0	-	-	-
Cp	3	7.0-12.0	9.5	14.0	-	-	-
Sq	3	7.0-14.0	9.5	14.0	-	-	-

Chemical and Physical Data

	Minimum	Maximum
Depth (feet)		12
Temperature (°F.)	57	60
Dissolved Oxygen (ppm)	10	10
pH	7.4	7.4
Turbidity (ppm)	0	0

Sketch



Recommendations

The following list of recommendations are aimed at improving the utilization and knowledge of slough areas on the lower Columbia River.

1. Surveys should be conducted of sloughs not covered by the 1970 survey.
2. Conduct periodic biological and chemical sampling of sloughs already surveyed to determine any changes in fish species and population, and possible variations in water quality. If possible, spring, summer, and fall sampling is desirable.
3. Improve boat and bank access by land acquisition or easement to those sloughs with the greatest angling potential.
4. Encourage angling for warm-water game fish in the slough areas.
5. The use of chemical treatment in certain sloughs behind tide gates to eliminate stunted populations of game fish should be considered. A determination of cost-benefit ratio should be made before treatment of any slough.

Acknowledgments

The author wishes to express his appreciation to the following Oregon State Game Commission personnel: Wayne Richards, who devoted a great deal of time and effort to the survey; and William E. Hosford, District Fishery Biologist, who designed and initiated the survey.