MINNESOTA DEPARTMENT OF NATURAL RESOURCES

RIVER OR STREAM SURVEY
DATE(S) OF FIELD WORK Various, June, August, October 1986, September 1987

Initial Survey [X] *
Resurvey [ ]

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NAME, LOCATION, AND FLOW CHARACTERISTICS

(1) Stream Name Shingle Creek
(2) Alternate Name(s) none
(3) Tributary Number M-34-49-24
(4) Counties Goodhue
(5) Watershed Name and Number Zumbro River - 35
(6) Sequence of Waterways to Basin tributary to the North Fork Zumbro River to the Zumbro River to the Mississippi River
(7) Map(s) Used USGS Quadrangle: Wanamingo, MN - 1968
(8) Length of Stream 3.7 miles
(9) Average Width – Upper Station 12.0 feet Lower Station 8.0 feet
(10) Mouth Location T. 110N R. 17W S. 25
(11) Flow at Mouth ~~1987~~ 1.18 cfs, Date 9/11/87
(12) Flow at Gaging Station – Minimum none cfs Average _____ cfs
(13) Location of Gaging Station none
(14) Initial Source of Sustained Flow confluence of two tile line tributaries SE¼, S.2, T.109N.,R.17W.
(15) Gradient 33.8 feet per mile
(16) Sinuosity 1.4

WATERSHED DESCRIPTION AND USE

(17) Description of Watershed (soil types, cover types, topography, land usage and ownership)

a) Entire watershed Shingle Creek flows through rolling agricultural land used mainly for row crops, hay or pasture. The soils are silt loams and silty clay loams.

b) Land adjacent to stream Seventy-five percent of the land adjacent to the stream is pastured. Twenty-five percent is wild grasses, forbs and willow. Ownership of the entire stream corridor is private, except for road right-of way and bridges.

*Heavy rains in late July and early August, 1986, resulted in flooding along Shingle Creek which caused extensive changes in the physical characteristics that were noted during reconnaissance in late June. (cont'd on back)

GENERAL INFORMATION ON THE STREAM

(18) Reason for Survey Inventory for initial survey and fish management purposes.

(19) Previous Investigations and Surveys none

(20) Special Problems or Conditions 1987 Silt lines throughout the watershed have eliminated areas which hold water and sediment supply. The stream has rapid fluctuations in the water stage and the sediment load is apparent. and causes high turbidity at times

(21) Sources of Pollution

Source	Loc. (mi. from mouth)	Substance discharged
1987		
Agriculture (nonpoint)	Entire stream	Animal wastes, herbicides, pesticides

(22) Erosion

Type	Degree	Affected reach
1987 Bank	moderate	entire stream

(23) Stream Alterations (dredging, channeling) – location and date None noted.

(24) Dams and other obstructions (include beaver dams)

Type	Mi. from Mouth	Head (ft.)	Length of Dam (ft.)	Type of Control Structure	Use	Fish Barrier	Owner	Condition or Status
Beaver (5)	1.9-2.2	3-4	15			yes		active

(25) Use of Water: Fishing _____ Recreation _____ Commercial navigation _____ Power _____ Irrigation _____
Livestock watering X Other (specify) Trapping

(26) Access (location and ownership) The stream flows through privately owned agricultural land. Public access is available only at bridges and road right of ways.

(27) Shoreline Developments none

(28) Recreational Boating – a) Navigable reach none
b) Type of boating none

(29) Tributaries and Springs

Names and/or Tributary Numbers	Water Source	Bank (R or L)	Length Miles	Width at Mouth (feet)	Miles from Mouth	Flow (c.f.s.)	Stage (high, normal, low)	Temp. °F					Date
								Mouth		Source		Time	
								Air	Water	Air	Water		

Remarks _____

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(30) Stream Physical Characteristics

a)	Station no.				
b)	Date				
c)	Loc. (mi. from mouth)				
d)	Length of station				
e)	% of station in:				
	Pools				
	Riffles and rapids				
	Runs				
	Other (list)				
f)	Average width (ft.)				
g)	Average depth (ft.)				
h)	Flow (cfs)				
i)	High water mark				
j)	Present stream stage (high, normal, low)				
k)	Banks:				
	Average height				
	Height range				
	Erosion (lt., mod., severe)				
	% grazed				
	% ditched or channeled				
l)	Shade[1]				
m)	Pools[2]				
	Average width				
	Width range				
	Average depth				
	Maximum depth				
	Type – No. of each				
	A				
	B				
	C				
	D				
	Bottom type – %[3]				
n)	Riffles and rapids				
	Average width				
	Width range				
	Average depth				
	Maximum depth				
	Max. velocity range (fps)				
	Bottom type – %				

(30) Stream Physical Characteristics (continued)

o)	Runs:				
	Average width				
	Width range				
	Average depth				
	Maximum depth				
	Max. velocity range (fps)				
	Bottom type – %				
	Other (describe)				
	Average width				
	Width range				
	Average depth				
	Maximum depth				
	Max. velocity range (fps)				
	Bottom type – %				
	DATA PERTAINING TO SIMILAR REACH				
q)	Location (mi. to mi.)				
r)	Gradient (ft./mi.)				
s)	Sinuosity				
t)	Channel changes (slight, mod., exten.)				

Remarks _____

[1]Shade:

light	0-25 percent shaded
moderate	26-75 percent shaded
heavy	over 75 percent shaded

[2]Pool types:

Type A – Good cover, 3 ft. or deeper
B – Good cover, less than 3 ft.
C – Poor cover, 3 ft. or deeper
D – Poor cover, less than 3 ft.

[3]Bottom types:

Ledge rock	– large mass of solid rock
Boulder	– over 10" in diameter
Rubble	– 3" to 10" in diameter
Gravel	– 1/8" to 3" in diameter
Sand	– less than 1/8" in diameter
Silt	– fine material with little grittiness
Clay	– compact, sticky material
Muck	– decomposed organic material, usually black
Detritus	– organic material composed of sticks, leaves, decaying plants, etc.
Marl	– calcareous material

(31) Characteristics of Water

a)	Station no.				
b)	Date				
c)	Loc. (mi. from mouth)				
d)	Length of station				
e)	Time				
f)	Air temp. $^{O}F.$				
g)	Water temp. $^{O}F.$				
h)	Color				
i)	Cause of color				
j)	Secchi disc. (ft.)				
FIELD DETERMINATIONS:					
	Diss. oxygen (ppm)				
	Free carbon dioxide (ppm)				
FIELD DETERMINATION OR LABORATORY ANALYSIS (Indicate by F or L)					
	Total alkalinity (ppm)				
	Conductivity (micromhos/cm)				
	pH				
LABORATORY ANALYSIS					
	Total nitrogen (ppm)				
	NH_3 (ppm)				
	NO_2 (ppm)				
	NO_3 (ppm)				
	Total phosphorus (ppm)				
	Orthophosphates (ppm)				
	Sulfate ion (ppm)				
	Chloride ion (ppm)				
	B.O.D. (ppm)				
	or C.O.D. (ppm)				
	Turbidity (JTU)				
	Tot. diss. solids (ppm)				

Remarks _____

(32) Temperature Profile

Date	Location (miles from mouth)	Water Temp.	Air Temp.	Water Stage	Time	Cloud Cover

Remarks ____

(33) Biological Characteristics

a)	Station no.				
b)	Date				
c)	Loc. (miles from mouth)				
d)	Length of station				
e)	Aquatic plants or filamentous algae:[1] Species	Abundance	Abundance	Abundance	Abundance

f) Distribution of aquatic plants

g) Common invertebrates: order or family (check blank if present)

Remarks

[1]Plant or algae abundance:

A – abundant
C – common
O – occasional
R – rare
P – present

(34) Fishery Characteristics

a)	Station no.							
b)	Date							
c)	Loc. (miles from mouth)							
d)	Length of station							
e)	Gear							
f)	Amt. of sampling effort							
g)	Species Present	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.

h) Gamefish young-of-year

Species:								

Remarks _____

Species / Total Length in Inches									
3.0 – 3.4									
3.5 – 3.9									
4.0 – 4.4									
4.5 – 4.9									
5.0 – 5.4									
5.5 – 5.9									
6.0 – 6.4									
6.5 – 6.9									
7.0 – 7.4									
7.5 – 7.9									
8.0 – 8.4									
8.5 – 8.9									
9.0 – 9.4									
9.5 – 9.9									
10.0 – 10.4									
10.5 – 10.9									
11.0 – 11.4									
11.5 – 11.9									
12.0 – 12.4									
12.5 – 12.9									
13.0 – 13.4									
13.5 – 13.9									
14.0 – 14.9									
15.0 – 15.9									
16.0 – 16.9									
17.0 – 17.9									
18.0 – 18.9									
19.0 – 19.9									
20.0 – 20.9									
21.0 – 21.9									
22.0 – 22.9									
23.0 – 23.9									
24.0 – 24.9									
25.0 – 25.9									
26.0 – 26.9									
27.0 – 27.9									
28.0 – 28.9									
29.0 – 29.9									
30.0 – 30.9									
31.0 – 31.9									
32.0 – 32.9									
33.0 – 33.9									
34.0 – 34.9									
35.0 – 35.9									
Totals									

(36) Age and Growth of Gamefish

a) Age class distributions

Species	Sample size	Subsample size	Number of fish in age group							
			I	II	III	IV	V	VI	VII	VIII+

b) Growth of gamefish

Species	Calculated mean total length at time of last annulus formation							
	I (N)	II (N)	III (N)	IV (N)	V (N)	VI (N)	VII (N)	VIII (N)

(37) Escape Cover for Gamefish

Similar reach	Type[1] and Amount[2] of Cover

[1]Cover types:
- LJ – log jam
- B – boulders
- OV – overhanging vegetation
- UB – undercut bank
- IV – instream vegetation

[2]Amount of cover:
- S – scarce
- O – occasional
- F – frequent

(38) Portion of Stream Suitable for Gamefish

Species	Suitable Reach (mi. to mi.)

(39) History of Stream and Fishing Conditions

a) Comparisons with past investigations and surveys

b) History of fishing conditions

(39) History of Stream and Fishing Conditions (continued)

c) Records of past management

Fish stocking

Year	Species	Size	Number or Pounds

Rough fish removal

Year	Species	Size	Number or Pounds

Special regulations _____

Habitat improvement:

Year Installed	Type and Amount	Location (mile to mile)	Cost	Present Condition

(40) Discussion of Fishery

a) General characteristics _____

(40) Discussion of Fishery (continued)

b) Fish management problems _____

(41) Ecological Classification of Waterway _____

(42) Summary _____

(43) Credits and Signatures

a) Funding _____

b) Field work by

Name of crew leader _____

Name of aide(s) _____

c) Completed report by

Name _____

Title _____

Approved by _____ Date _____

Regional Fisheries Manager

Typist's Initials: