NH RSA 483

NOMINATION APPLICATION

PISCATAQUOG RIVER

1992

NEW HAMPSHIRE RIVERS

MANAGEMENT & PROTECTION PROGRAM

SPONSOR

PISCATAQUOG WATERSHED ASSOCIATION

P. O. BOX 362

NEW BOSTON, NH 03070

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CONTENTS

page 1	SECTION I	OPENING STATEMENT OF SIGNIFICANCE
page 3	SECTION II	EARLY TIME
	Part A:	The First Book
	Part B:	The Piscataquog In the Twentieth Century
	Part C:	The River and Life in Today's Communities (A Survey)
page 11	SECTION III	YESTERDAY'S REMAINS
	Part A:	Historic Mill Sites
	Part B:	Historic Stone Bridge
	Part C:	A Canoe Journey That Creates Memory
page 14	SECTION IV	GEOLOGIC FEATURES
page 16	SECTION V	NATURAL SYSTEMS RESOURCE ASSESSMENT
	Part A:	Birds
	Part B:	Mammals
	Part C:	Reptiles
	Part D:	Amphibians
	Part E:	Wildflowers
	Part F:	Fishery
	Part G:	Natural Communities

page 26	SECTION VI	WATER QUALITY
page 28	SECTION VII	OPEN SPACE PROTECTION
page 29	SECTION VIII	NATURAL FLOW AND IMPOUNDMENT
page 31	SECTION IX	WITHDRAWALS AND DISCHARGES
page 32	SECTION X	COMMUNITY AND RECREATION RESOURCES
	Part A:	General
	Part B:	The Lakes
	Part C:	The River - Specific
	Part D:	Fishing Holes - Unspecific
page 35	SECTION XI	ACCESS POINTS
page 36	SECTION XII	SCENIC RESOURCES
page 41	SECTION XIII	COMMUNITY AND PUBLIC SUPPORT
page 42	SECTION XIV	TOWN GOVERNMENT LAND USE CONTROLS
page 46	SECTION XV	SOUTH BRANCH MANAGEMENT PLAN
page 47	SECTION XVI	RIVER CLASSIFICATION DESCRIPTIONS
page 52	ACKNOWLEDGEMENTS	

MAPS

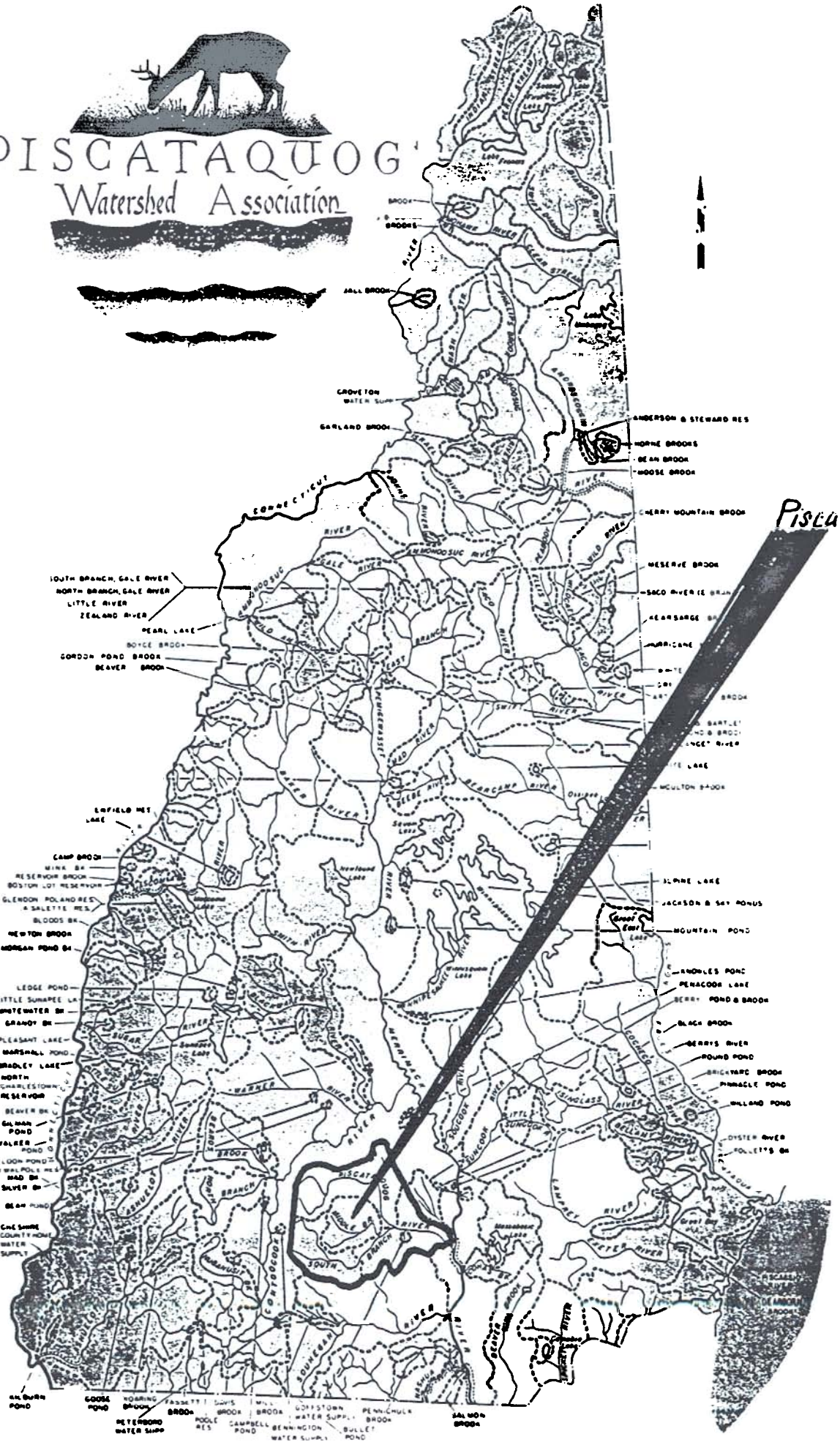
(listed in order of appearance)

#1: Locality
#2: base map
#3: historic mill sites
#4: aquifers
#5: water test sites
#6: land protection
#7: Piscataquog River Park
#8: river classification key

APPENDIX

A The First Book
B Water-Powered Mills of the Piscatsaquog
C Flood Control On Piscataquog's North Branch
D A Timetable of History
E New Boston's Mills & Factories
F Among The Rarest of Wild Orchids
G Piscataquog Fishery Data
H Piscataquog River Water Quality Report
I Wood Duck Restoration Program
J Piscataquog River Park
K Letters of Support
L South Branch Management Plan

PISCATAQUOG Watershed Association



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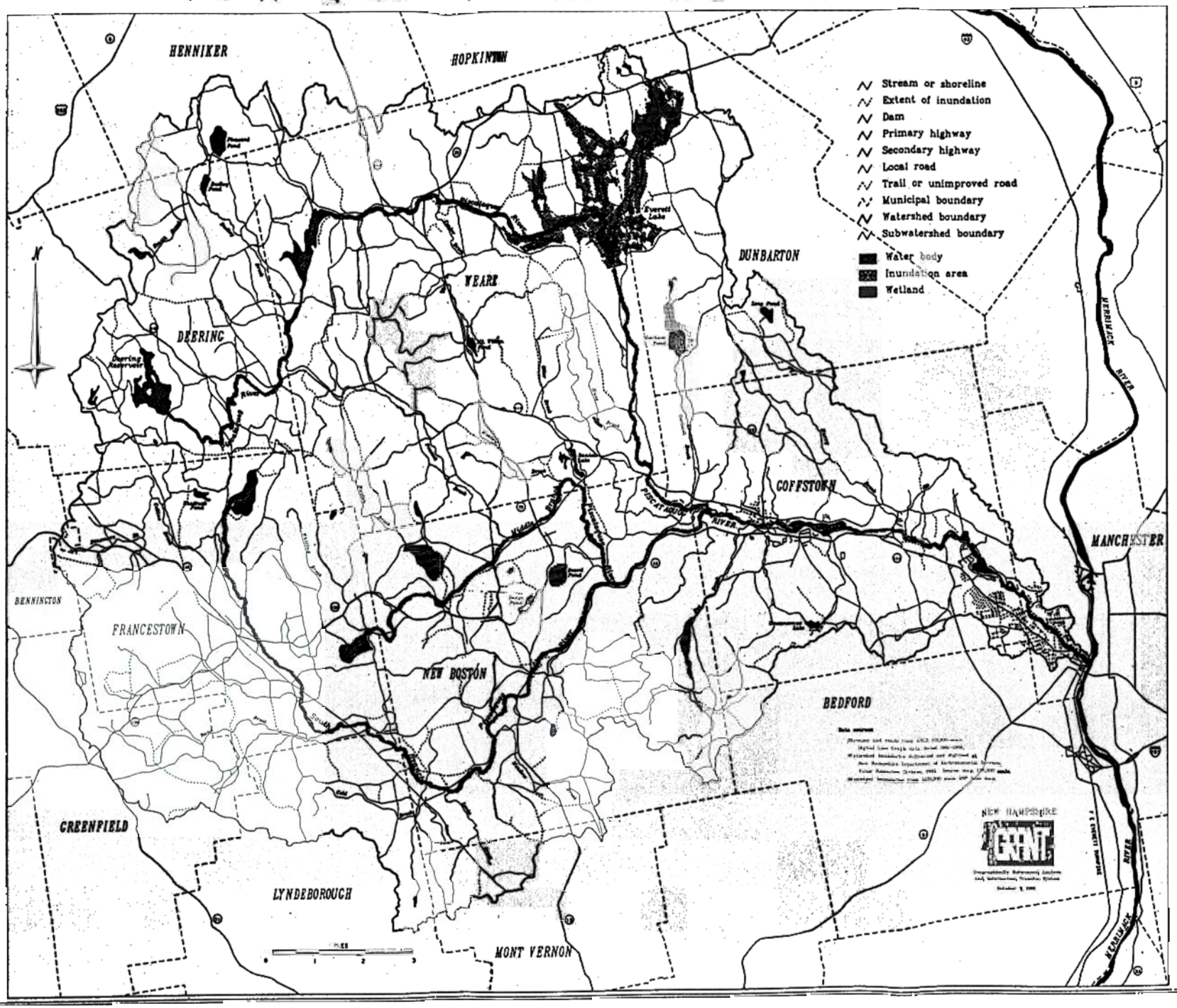


SECTION I

Opening Statement of Significance

The Piscataquog River, a quiet stream with a loud and proud history. Blow the dust off the old local books of record. Few chapters could be read without discovering stories or anecdotes about the river's contribution to this part of the New World's development. The first British land surveyors found the equivalent of treasure growing throughout the Valleys of the Piscataquog; the riches being multitudes of massive White Pine. "Cut no tree upon whose stump a yoke of oxen cannot be driven." reads Derryfield's (Manchester) Town History of 1751-1810. Soon the broad sails on the schooners and clippers of the British Fleet and vessels of war of the Royal Navy were supported by masts grown along the Piscataquog. Evidence of the level of attention given to this valley is clear in this quote from the History of Manchester(1).

> **"More lumber has been boated and rafted from the Piscataquog River than upon all the rivers north of Boston."**

Proprietors came to the Piscataquog early, and the river provided them with food and reliable power. The communities of Piscataquog

1. History of Manchester, Derryfield 1751 - 1810, Chandler E. Potter, pp. 18-19, 70-71, 182-183, 1856.

Village(2), (named in an original King's Grant #5, dated 1733), Goffstown, New Boston, Weare and Francestown prospered because the river was dependable. It remains dependable to this day; only its uses have changed. The northern portion of the Piscataquog watershed has historically received large amounts of precipitation. Flooding, or as history books read, 'great freshets' occurred repeatedly, each sweeping away water-powered mills with regularity. In 1936 and 1938 flood waters from the valley created such widespread damage that in 1964 the Army Corps of Engineers constructed a massive earthern dam on the North Branch Piscataquog to control the active river.

Today this river offers a multitude of values to New Hampshire's southern populations. For years the Appalachian Mountain Club, and other canoe and kayak clubs, have tested South and North Branch rapids during Spring's high water. Its free-flowing, high quality waters entice people who fish to its private pools and deep forest-lined stretches of ripples. Its river banks offer scores of historic sites, many with impressive stonework foundations, where the echoes of early colonial commerce can still be imagined.

More of the Piscataquog flows in complete privacy today than at any time since leather boots stepped onto the shores of the New World. Where the river reveals itself on a regular basis, it is truly revered. In a questionnaire entitled **PISCATAQUOG RIVER SURVEY** (Section IIC), 88.5% of respondents stated clearly their appreciation of the river's aesthetic qualities and the recreational opportunities it provides.

2. History of Manchester, Piscataquog Village, C. E. Potter, pp. 670-674, 1856.

Of particular note:

> The Piscataquog River's natural system is healthy and intact; therefore, the river corridor is the major contributor to the diversity of wildlife throughout the watershed

THE RIVER IS FREE-FLOWING FOR 95% OF ITS LENGTH. FEW STREAMS CAN MAKE SUCH A CLAIM.

SECTION II

EARLY TIME

PART A. **The First Book**

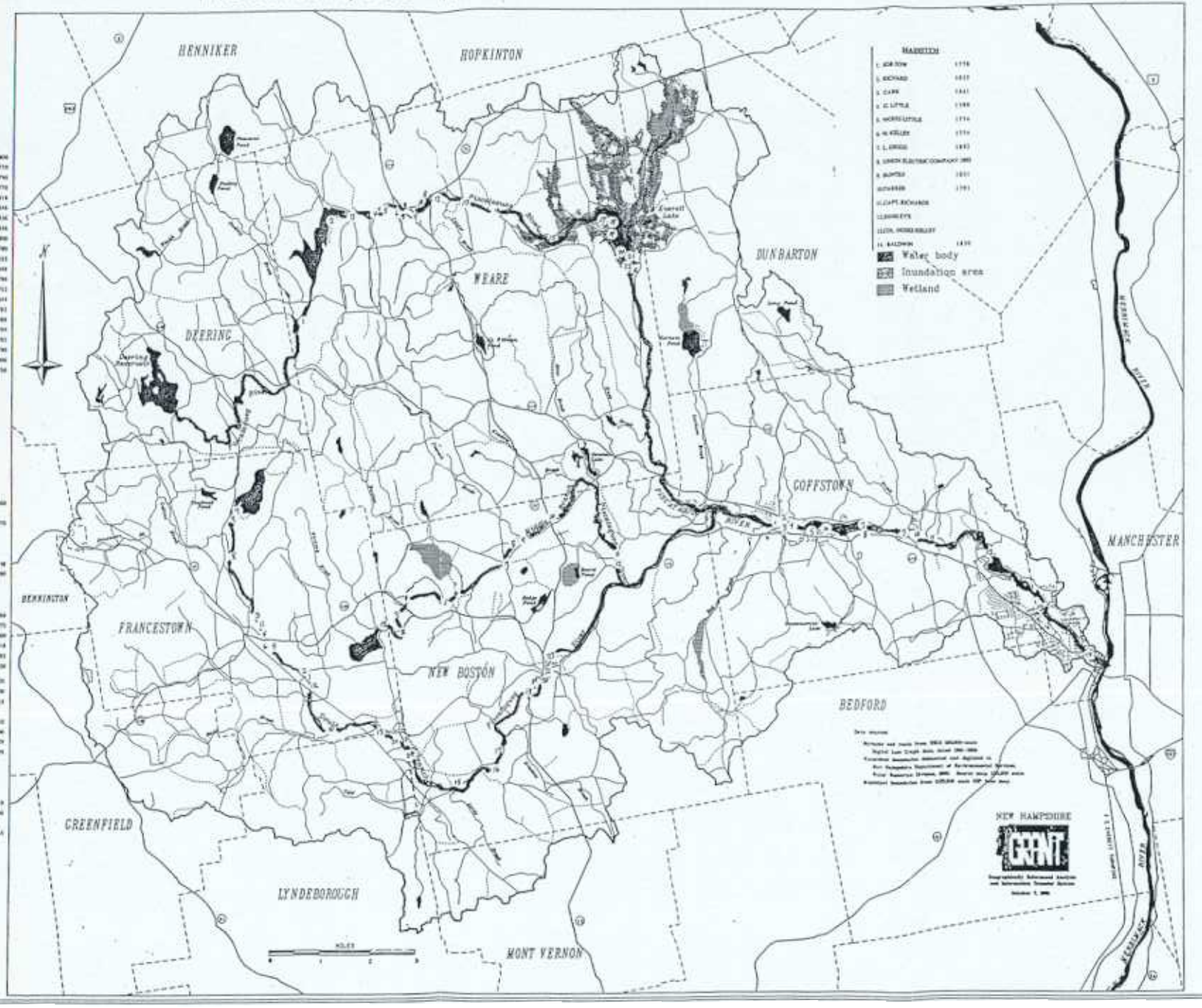
THE FIRST BOOK OF RECORDS OF THE PROPRIETORS BY THE GENERAL COURT OF THE PROVINCE OF MASSACHUSETTS BAY

[See Appendix A]

This, the earliest of proprietorships, went to Captain William Rayment, leader of an Expedition to Canada in 1690. The book reads:

> *"This township lying on the Northern Branch of the River Piscataquog was granted December 1735 & laid out in February following to 60 Petetioners & on November 24,1736 was named by the Proprietor Halestown"*

PISCATAQUOG RIVER WATERSHED: BASE MAP



Early settlements, specifically Francestown, Weare, New Boston and Piscataquog Valley, (later Manchester), were sited because of the region's natural resources, White Pine for ships' masts and reliable water power from the Piscataquog River. Because of the abundance of sawable trees, and because the river could supply power, saw mills were the first industries to be constructed. From rough sawn timbers houses could be framed. From rough sawn boards, often shiplapped, sidings and roofs were possible. After protective shelters followed the business of growing crops In grist mills the river ground the treasured whole grains.

The river made shelter and food possible. Once families could be sustained, the mills, built along the river, popped up like a row of seed corn. In the Town of Weare, by the 1830's, the river was turning the fly-wheels and belts of up to thirty mills (3). On the South Branch, in Francestown and New Boston there were over a dozen mills, and, along the Middle Branch at least eight were making the necessities of what it took to build a new nation.

[See **Appendix B: Water-Powered Mills of the Piscataquog**]

All were in operation by 1835. To appreciate the historic role these river waters played in the eighteenth, nineteenth and for the first four decades of the twentieth centuries, one need only walk a short distance along any of the streams' banks. Stone foundations, laid dry, created by masters of the

3 Little, William, The History of Weare 1735-1888. ,(Lowell, Mass, S. W. Huse & Co, 1888) Chapter LXVII, Industries.

art, stand as visible memories to early entrepreneurial commerce. What a hubbub of activity this river must have experienced! The products produced by those water-turned machines are wonderful to recollect:

Shingles and clapboards
Axe-handles and spokes;
Carriage and spinning wheels
Boxes and pails.
Sleighs, wooden dishes
Baskets and bobbins;
Clothes dryers and sashes
Shuttles and combcases.
Shoe-pegs and towel racks
Skivers and Jumping Jacks.

And there were:

Toys, doors, and barrels for molasses,
Blinds, cabinets and barrels for fishes;
Quaker Boots, stairposts and matches,
Rakes, keelers, pails, wood latches.
Yards of cloth, mackerel kits and rakes,
Forty-foot long ship timbers and stakes;
Hoes, mirror and piano frames
Caskets, knobs, and skimmers.
Hollow augers and screw plates,
And by 1895, electricity.

PART B. THE PISCATAQUOG IN THE TWENTIETH CENTURY

1900 - 1964

At the turn of the last century the river was working to capacity From that fact hatched the "promises". The promisers said, "Put up a forty-foot dam up-river from the Box Shop. Such a head of water will allow you to build factories, several factories, each employing over 200 hands."

Some folks, living downstream from the proposed structure asked, "What if the dam should burst?"

Such ideas were scoffed at. "How could a ten-foot-thick concrete and steel dam ever break?" asked the promisers.

The money was duly raised and appropriated, and in 1912 the dam, which was supposed to bring prosperity to the villages alongside the Piscataquog, was built.

The promises did not pan out. Even worse, on September 21, 1938, torrents of rain visited the watershed. The brooks filled. The river filled, and at the headwaters, the clay dam at Deering Lake was breached. Once that body of water was unleached, the dam at Lake Horace was doomed.

"What if the dam should burst?" The scoffers had long been gone. A few who had originally posed that fateful question watched in absolute horror as bridges, roads, stores, livestock, their own homes, their dreams were swept away into the mud of the raging current

Eight people were victimized by a collapsing bridge. Four drowned, the flood keeping one poor soul its own secret for eternity.

The nation's wireless sets hummed with bulletins of the Great New England Flood, few realizing the unbelievable volume of water contributed by the Valley of the Piscataquog. By 1958 the river's unruliness came to the attention of the U. S. Army Corps of Engineers. By 1964 a barrier 2,000 feet long, and 115 feet high was placed across the Piscataquog's North Branch. The river's wings would no longer be useful for flight.

[See **Appendix C: Flood Control On Piscataquog's North Branch**]

PART C. THE RIVER AND LIFE IN TODAY'S COMMUNITIES

Piscataquog River Survey (A Questionnaire)

The process of nominating the Piscataquog River in the Rivers Management and Protection Program requires the documentation of the river as a cultural resource. The assessment of the river as a cultural and community resource became the class project in an environmental biology course taught by Dr. Barry J. Wicklow, Professor at Saint Anselm College in Manchester, NH. Students, with input from the New Hampshire Department of Environmental Services, developed a questionnaire designed to determine

(1) **how the river is used by the community**

(2) **what the river means to the community, and,**

(3) **how the river should be managed in the future.**

Questionnaires were sent to 250 residents owning land along the river; 53 questionnaires were returned, the results of which are summarized below.

AN OVERWHELMING MAJORITY, 88.5 % OF RE-SPONDENTS, SUPPORT THE NOMINATION OF THE PISCATAQUOG RIVER AS A STATE DESIGNATED RIVER.

Item A. Community use of the river.

The major economic uses of land along the river were (1 as investment, (2) for forestry, and (3) for agriculture (Table 1). The river also serves a wide range of uses as a recreational resource (Table 1). Eighty-three percent of the respondents considered the river as an important scenic and aesthetic resource, many indicating that this is an economic asset for the state's tourist industry.

TABLE 1. Economic and recreational uses of the Piscataquog River

As an economic asset		As a recreational resource	
% respondents	use	% respondents	use
26	Investment	83	Scenic
22	Forestry	70	Canoeing, kayaking
15	Water supply	60	Fishing
11	Agriculture	60	Hiking, ski trails
3.8	Business	57	Swimming
0	Industry	49	Photos, painting
0	Shoreline development		

Item B. What the river means to the community.

In addition to their concern for the economic and recreational value of the river, respondents expressed deep, often passionate feelings about the river. Many stated concerns about wildlife, fisheries, threats of unwise development, and the strong positive effect of rivers on the state tourist industry. Respondents placed high value on the river as a scenic and aesthetic resource - a value difficult to assign a dollar figure, yet one of great importance to the community. Examples of responses regarding the communities strong feelings about the river are quoted herein:

"Very important as it adds to the charm of New England, and New Hampshire in particular. Since tourism is our greatest industry we should do all we can to create scenic rivers to encourage tourists."

"I enjoy living near water and knowing that we can protect that part of the river which abuts our property."

" Extremely so - New Hampshire has fewer and fewer undeveloped open spaces for scenic beauty."

" Very important - not only to see natural, undeveloped shoreline, but quality/purity of the river water."

" Critical as a natural resource to preserve rural communities.

" It is an integral part of our farmland."

" The river is a source of 'living' natural history - beaver, Canada geese, fish, etc, and must be preserved."

" The river is very important to many people living in other parts of the state who have spoken to me of their pleasure in driving Route 13 between New Boston and Goffstown."

I would like to see the river unchanged with no further development."

" At night I can hear the river as it flows past our house. During the day there are times when the sun reflects off the water and is very attractive. I enjoy sitting and watching the river at any time of the year."

" The river as an aesthetic resource is extremely important."

" I want to see the river remain protected and more land procured for future protection."

" I am at peace here. My family and I would not have been able to create what we have for our business without it."

" I believe that scenery is one of the most important resources that New Hampshire has since it is the basis of much of the tourist industry and, thus, has a straight forward dollar value."

" Even though Route 13 is a scenic drive, it's only skin deep. Walk over these ridges at the raping of land by gravel operations, and now low income housing is areas very, very close to and in the run-off area."

" It gives meaning and joy to life that has been ravaged by destruction, greed, the power of money as a god."

" It has been a life-long passion."

" Living in the vicinity of a river is aestheticaly desirable, but river frontage - river and land - should be preserved."

Should be free of development. Should be preserved at all costs for its beauty."

" Central importance! Not nearly enough good, preserved scenery."

" I chose to live in New Boston because of the scenic beauty and the recreational (canoeing) opportunity."

" I'll kill any son-of-a-bitch who ruins it."

Wish to maintain it as is with minimum development."

Item 3. Future management and protection of the river

Respondents rated development too close to the river, water pollution, recreational abuses, and flooding as the most serious past or current problem concerning the river (Table 2). Respondents supported a wide range of measures that should be taken in order to protect the river as a resource. Only two respondents suggested that no additional protection is needed.

Table 2. Ranking of past or current problems concerning the Piscataquog River

% respondents	problem
26	Development too close to the river
20	Flooding
20	Water pollution
20	Recreational abuses
13	Recreational overuse
13	Excessive erosion
11	Destruction of or injury to sensitive areas
9.4	Loss of wildlife and waterfowl
9.4	Loss of fish habitat
5.6	Loss of farmland
5.6	Loss of wetlands
3.7	Loss of public access
0	Loss of or damage to historical/cultural sites

SECTION III

YESTERDAYS' REMAINS

PART A Historic Mill Sites

The Piscataquog Valley of New Hampshire was developed early. While the numbers of large White Pine and Red Oak centered attention to the valley, successful townships were possible due directly to the river. The reality of that history still stands silent along this river, which provided reliable water for the paddled wheels turned by its force. The significance

of the river to the livelihood of those pioneers cannot be over emphasized. Written records of these river-centered activities abound in local printed histories and in story. (For those wanting a glimpse of this background, the following are included in the Appendixes of this application as follows:

"""[See **Appendix D: A Timetable of History by Terry Knowles, Weare Historical Society,** and,

"""[See **Appendix E: New Boston's Mills and Factories by Charles and Rena Davis, New Boston Historical Society.**]"""

PART B. Historic Stonebridge

In Deering, on Old Deering Road, spanning the North Branch Piscataquog, stands a stone bridge of great dignity. While the origin of this structure is not accounted for in pages of print, it is ancient indeed. There are three abutments, one on either shore, and one in mid-stream The abutments are spanned with flat boulders, the size of which when seen, stagger the imagination. Those massive stones form the roadway across the river. Those colonial architects proved that structures that were practical and simple would last. There is no proof, but it might be assumed that a few barrels of hard cider undoubtedly played a roll in that endeavor.

During the great flood of 1938, this stone bridge in Deering was the *only* river crossing which survived the force of those raging waters.

PART C. A Canoe Journey That Creates Memory

Weare's Most Significant Prime Wetland

The Weare Conservation Commission processed the first Prime Wetland designation (RSA 483-A:7), in the state. The Horace Chase Prime Wetland on the North Branch Piscataquog, is an outstanding aquatic marsh habitat where wildlife and 'people life' can both find sanctuary. The river winds its way, secretively, through this marshy kingdom. Canoeists are restricted to a narrow, deep channel, the banks of which are heavily guarded with grasses of stunning height, roses and milkweeds of delicate scent, and dogwoods of clustered berries. Fur-bearers live and reproduce here. Varieties of birds, common and rare, nest in this natural house, as migrants, remembering its offerings, regularily rest and feed here. Fishes, of native heritage, swim here in waters provided by beavers and colored by the dyes of trees To become part of this Piscataquog Marsh is to be rewarded with a gift from the river which will last a lifetime.

SECTION IV

Geologic Features Within the River Corridor

(Part A information provided by Geologist, Paul Hague)

Part A <u>Historic</u>

All of the Piscataquog watershed area lies on the Littleton Formation, grey quartz-mica schists with some volcanics of lower Devonian age - 390-400 million years old. There also exist a few outcrops of the Kinsman Quartz Monzonite, a plutonic rock-like granite injected into the Littleton in the upper Devonian - 360-380 million years ago. The Kinsman is characterized in places by its large (3 - 5"long) feldspar crystals.

More recently the whole area has been glaciated by continental ice sheets several times; most recently 10 - 12 thousand years ago. As the mile-thick ice melted, many typical glacial landforms were left behind.

Part B <u>Remnent glacial landforms</u>

(Part B information provided by Robert Todd, Engineer)

√ <u>The Esker Train.</u> While the Piscataquog Watershed holds numerous examples of eskers, those interesting remnants of streams which coarsed through channels of glacial ice, one example along the South Branch Piscataquog is outstanding. An esker train, starting at the base of Piscataquog Mountain in Lyndeborough, runs northerly along the river into New Boston. To walk the crest of this four-mile formation is a grand experience.

√ Glacial Kettles: A f porti f th

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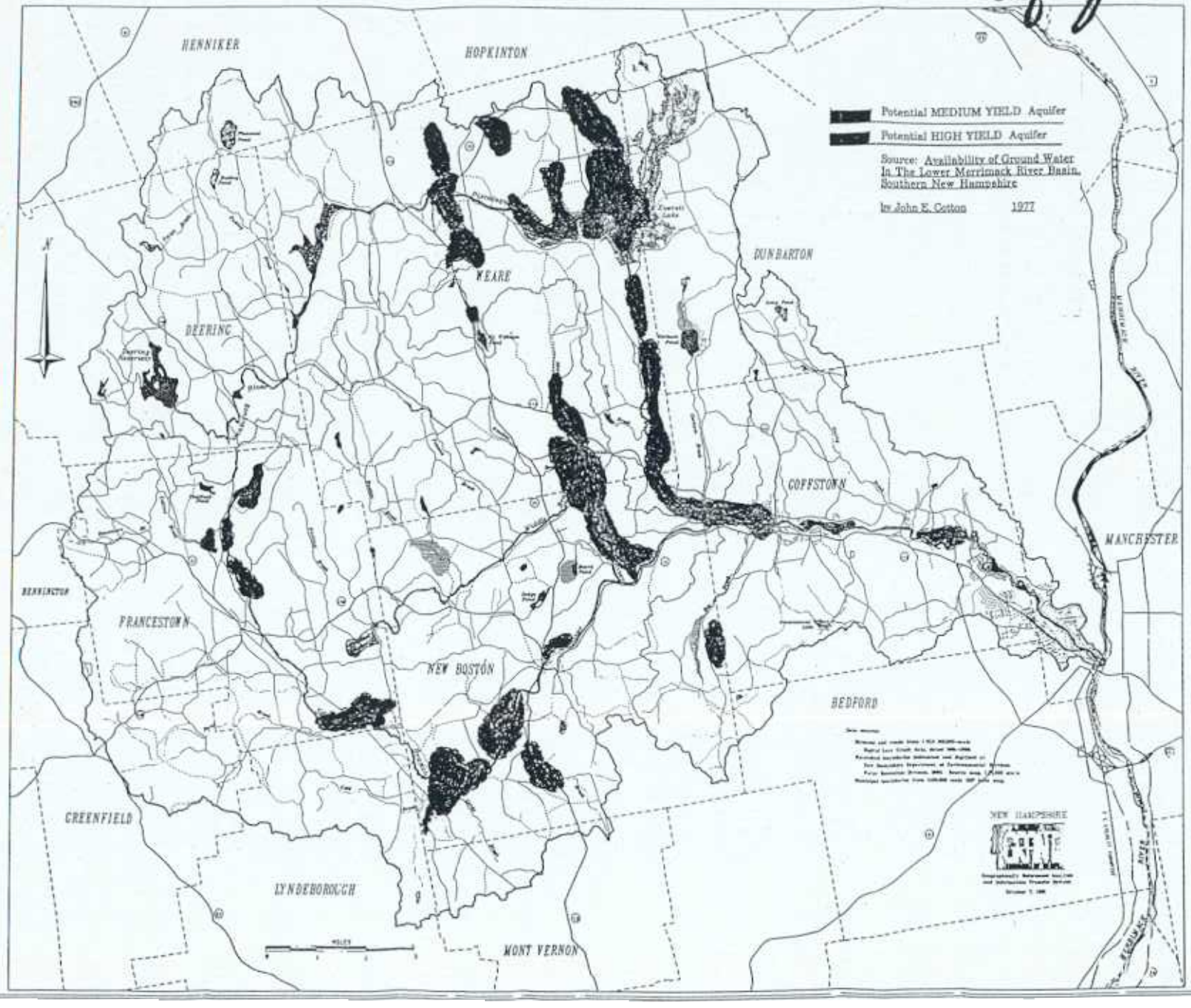
PISCATAQUOG RIVER WATERSHED: BASE MAP-*Aquifers*



SECTION V

NATURAL SYSTEMS RESOURCE ASSESSMENT

Wildlife/Wildflowers: Listed herein are species of Birds, Mammals, Reptiles, Amphibians and Wildflowers which have been observed as present in the Piscataquog Watershed. Most are believed to breed or propagate there. **CONTRIBUTORS:** Barry Wicklow, Ph.D., St. Anselm College;James Taylor, Ph.D., U.New Hampshire; Richard Daggy, Ph.D, Harvard U.; Robert Reeve, Gordon Russell, Audubon Society of NH.

*** State Endangered Species
** State Threatened Species
* Species of Special Concern
(Species ranked by New Hampshire Heritage Inventory in categories S1-S3)

BIRDS

PART A

** Common Loon
*** Pied-billed Grebe
* American Bittern
* Least Bittern
* Great Blue Heron (Rookeries)
Green-backed Heron
* Black-crowned Night Heron
Canada Goose
Wood Duck
American Black Duck
Mallard
Northern Pintail
Blue-winged Teal
* Ring-necked Duck
* Hooded Merganser
Common Merganser
Turkey Vulture
** Osprey
Bald Eagle
Northern Harrier
Sharp-shinned Hawk
** Cooper's Hawk
Northern Goshawk
Red-shouldered Hawk
Broad-winged Hawk
Red-tailed Hawk
American Kestrel
*** Peregrine Falcon
* Merlin
Ring-necked Pheasant
Ruffed Grouse
Wild Turkey
Northern Bobwhite
Virginia Rail
Sora
American Coot
Killdeer
Solitary Sandpiper
Common Snipe
Spotted Sandpiper
American Woodcock
Ring-billed Gull
Herring Gull
Great Black-backed Gull
Rock Dove
Mourning Dove
Black-billed Cuckoo
Yellow-billed Cuckoo

Eastern Screech Owl
Great Horned Owl
Barred Owl
Northern Saw-whet Owl
Common Nighthawk *
Whip-poor-will *
Chimney Swift
Ruby-throated Hummingbird
Belted Kingfisher
Yellow-bellied Sapsucker
Downy Woodpecker
Hairy Woodpecker *
Northern Flicker
Pileated Woodpecker
Olive-sided Flycatcher
Eastern Wood-Pewee
Alder Flycatcher
Willow Flycatcher
Least Flycatcher *
Eastern Phoebe
Great Crested Flycatcher
Eastern Kingbird
Purple Martin
Tree Swallow
Northern Rough-w. Swallow
Bank Swallow
Barn Swallow
Blue Jay
American Crow
Northern Raven
Black-capped Chickadee
Tufted Titmouse
Red-breasted Nuthatch
White-breasted Nuthatch
Brown Creeper
House Wren
Winter Wren
Marsh Wren
Golden-crowned Kinglet
Ruby-crowned Kinglet
Blue-gray Gratcatcher
Eastern Bluebird
Veery
Gray-cheeked Thrush
Swainson's Thrush
Hermit Thrush
Wood Thrush
American Robin
Gray Catbird
Northern Mockingbird
Brown Thrasher
Cedar Waxwing
Northern Shrike
European Starling

Solitary Vireo
Yellow-throated Vireo
Warbling Vireo
Red-eyed Vireo
Blue-winged Warbler *
Tennessee Warbler *
Nashville Warbler
Northern Parula
Yellow Warbler
Chestnut-sided Warbler
Magnolia Warbler
Cape May Warbler *
Black-throated Blue Warbler
Yellow-rumped Warbler
Black-throated Green Warbler
Blackburnian Warbler
Pine Warbler
Prairie Warbler
Palm Warbler *
Bay-breasted Warbler
Blackpoll Warbler
Black-and-white Warbler
American Redstart
Ovenbird
Northern Waterthrush
Louisiana Waterthrush
Common Yellowthroat
Canada Warbler
Scarlet Tanager
Northern Cardinal
Rose-breasted Grosbeak
Indigo Bunting
Rufous-sided Towhee
American Tree Sparrow
Chipping Sparrow
Field Sparrow
Savannah Sparrow
Fox Sparrow
Song Sparrow
Lincoln's Sparrow
Swamp Sparrow
Common Redpoll
White-throated Sparrow
White-crowned Sparrow
Pine Grosbeak
Purple Finch
House Finch
White-winged Crossbill
Dark-eyed Junco
Snow Bunting
Bobolink
Red-winged Blackbird
Eastern Meadowlark

Rusty Blackbird
Common Grackle
Brown-headed Cowbird
Northern Oriole
Orchard Oriole
Pine Siskin
American Goldfinch
Evening Grosbeak
House Sparrow

MAMMALS

Bat, Big Brown
Bat, Silver-haired
Bear, Black
Beaver
Bobcat
Chipmunk, Eastern
Cottontail, New England
Coyote
Deer, White-tailed
Fisher
Fox, Gray
Fox, Red
Hare, Snowshoe
Mink
Mole, Hairy-tailed
Mole, Star-nosed
Moose
Mouse, Deer
Mouse, House
Mouse, Meadow Jumping
Squirrel, Gray
Squirrel, Northern Flying
Raccoon
Rat, Norway
Skunk, Striped
Shrew, Masked
Shrew, Short-tailed
Squirrel, Red
Squirrel, Southern Flying
Vole, Meadow
Vole, Southern Red-backed
Woodland Vole
Weasel, Long-tailed
Weasel, Short-tailed (Ermine)
Woodchuck

REPTILES

Racer, Northern Black
Snake, Eastern Garter
Snake, Eastern Hognose
Snake, Eastern Milk
Snake, Northern Brown
Snake, Northern Redbelly
Snake, Northern Ringneck
Snake, Northern Water
* Turtle, Blanding's
Turtle, Common Snapping
* Turtle, Eastern Box
Turtle, Eastern Painted
* Turtle, Spotted
Turtle, Wood

AMPHIBIANS

Bullfrog
Frog, Green
Frog, Northern Leopard
Frog, Pickerel
Frog, Wood
Mudpuppy
Newt, Red-spotted
Peeper, Northern Spring
Salamander, Blue-Spotted
Salamander, Northern Two-lined
Salamander, Redback
Salamander, Spotted
Toad, Eastern American
Treefrog, Gray
Peeper, Northern Spring
Salamander, Blue-Spotted
Salamander, Northern Two-lined
Salamander, Redback
Salamander, Spotted
Toad, Eastern American
Treefrog, Gray

WILDFLOWERS

From surveys of the New Hampshire Natural Heritage Inventory, the following wildflowers, now surviving within the Piscataquog Watershed, deserve every protection possible:

Small Spike-Rush

- ☆ G-1 imperilled globally
- ☆ S-1 critically imperilled within the state

Gall-of-the-Earth

- ☆ SU possibly in peril

One-Sided Rush

- ☆ S-2 imperilled in state
- ☆ G-5 secure globally rare in range

Piled-Up Sedge

- ☆ S-2 imperilled in state

Slender Crabgrass

- ☆ SH historical occurrences; may be re-discovered

Small Whorled Pogonia

- ☆ G-2 imperilled globally
- ☆ S-2 imperilled in state

``(See Appendix F: Among The Rarest of Wild Orchids)''''

Following wildflowers observed within the watershed.

Roses ssp
Swamp Honeysuckle
Labrador Tea
Meadowsweet
Shadbush
Sweet Pepperbush
May-Apple
Bunchberry
Mallow ssp
Waterlilies ssp
Wild Calla
Arrowheads ssp
Water-Plantain
Trillium ssp
Hedge Bindweed
Jimsonweed
Moccasin-flower (pink & white)
Ladies'-Tresses ssp
Rattlesnake Plantain
Sundew ssp.
Indian pipe
Hepatica
Starflower
Rue-Anemone
Bloodroot
Violet ssp.
Pipsessewa
Pyrola ssp.
Brambles ssp.
Avens
Strawberry ssp.
Thimbleweed
Goldthread
Wood sorrel
Cheeses ssp.
Bladder Campion
Bouncing Bet
Moss Pink
Chickweed
Lesser Stitchwort

Trailing Arbutus
Wintergreen
Bedstraw ssp.
Wild Madder
Partridgeberry
Bluets
Purslane Speedwell
Yarrow
Cinquefoil
Boneset
Wild Carrott
Poison Hemlock
Water Hemlock
Bristly Sarsaparilla
Black Snakeroot
Water Parsnip
Dwarf Genseng
White Baneberry
Turtlehead
Striped Gentian
Mullein
Pokeweed
Blue Vervain
False Solomon's-Seal
Solomon's-Seal
Wild Lily-of-the-Valley
Clintonia (Yellow)
Nightshade(Common)
Foamflower
Dogbane
Tall Meadow-Rue
White Lettuce
Virgin's Bower
Mint ssp.
Clover ssp.
Dame's Rocket
Watercress
Pearly Everlasting
Galinsoga
Ox-Eye Daisy
Whorled Wood Aster
White Wood Aster
Flat-Topped White Aster
Yellow Water Lily
Trout Lily
Indian Cucumber Root
Wild Oats
Large-Flowered Bellwort
Canada Lily
Clintonia
Butter & Eggs
Yellow Lady's-slipper
Yellow Loosestrife
Common Evening Primrose
Common St.Johnswort
Dandelion
Black-eyed
Chrysogonum
Lance-leaved Coreopsis
Tickseed Sunflower
Elecampane
Greater Bladderwort
Beechdrops
Pinesap
Yellow Corydalis
Hairy Honeysuckle
Northern Bush-Honeysuckle
Marsh Marigold
Celandine
Buttercup ssp.
Whorled Loosestrife
Moneywort
Garden Loosestrife
Comfrey
Birdfoot Trefoil
Wild Senna
Field Mustard
Golden Alexanders
Beggar-Ticks
Hawkweed ssp.
Golden Ragwort
Sow-Thistle
Goldenrod ssp.
Day-Lily
Wood Lily
Spotted Touch-Me-Not

Rose Pogonia
Fringed Polygala
Columbine
Cardinal Flower
Musk Mallow
Purple Flowering Raspberry
Pasture Rose
Wild Pink
Ragged Robin
Maiden Pink
Purple Fringed Orchis
Showy-Tick Trefoil
Steeplebush
Purple Loosestrife
Garden Phlox
Sheep Laurel
Pale Laurel
Rhodora
Pitcher Plant
Pipsissewa
Groundnut
Everlasting Pea
Common Morning-Glory
Swamp Rose
Marsh St.Johnswort
Northern Willow-Herb
Lady's-Thumb
Milkweed ssp.
Sweet Joe-Pye Weed
Spotted Joe-Pye Weed
Common Burdock
Bull Thistle
Salsify
Blue Flag ssp.
Creeping Bellflower
Grape Hyacinth
Pickerel Weed
Blue-Eyed Grass
Common Speedwell
Bluets
Indian Tobacco
Monkey-Flower
Common Skullcap
Mint ssp.
Heal-All
Cow Vetch
Beach Pea
Purple Aster
Bachelor's-Button
Arrow Arum
Jack-in-the-Pulpit
Skunk Cabbage
False Hellebore
Common Ragweed
Common Smartweed
Stinging Nettle
Common Cattail
Black Swallowwort
Steeplebush
Meadowsweet
Pasture Rose
Pyrolas ssp.
Wild Sarsaparilla
Swamp Saxifrage
Forget-me-Not
Cinquefoil
Gill-over-the-Ground
Pussytoes
Smartweed
Maleberry
Buttonbush
Chokeberry
High-bush Blueberry
Low-bush Blueberry
Red Osier Dogwood
Silky Dogwood
Arrowwood
Mustards ssp.
Leatherleaf
Twisted-stalk
Sandwort
Habenaria ssp.
Brook Lobelia
Water Horehound
Motherwort
Crowned Vetch

Cow Vetch
Enchanter's Nightshade
Pokeweed ssp.
Maple-leaf Viburnum
Oxalis

PART F. THE FISHERY*

*(assessment: William Hearn, PhD, biologist)

DATA: Item 1. Fish species common to the Piscataquog River:

Common name	Scientific name	Common name	Scientific name
Brook trout	Salvelinus fontinalis	Brown bullhead	Ictalurus nebulosus
Brown trout	Salmo trutta	Yellow bullhead	Ictalurhus natalis
Rainbow trout	Oncorhynchus mykiss	Longnose dace	Rhinicthys cataractae
Atlantic salmon	Salmo salar	Blacknose dace	Rhiichthys atratulus
Chain pickerel	Esox niger	Fallfish	Semotilus corporalis
Smallmouth bass	Micropterus solomieui	Golden shiner	Notemigonus crysoleucas
Largemouth bass	Micropterus salmoides	Common shiner	Notropis cornutus
White perch	Morone americana	Spottail shiner	Notropis hudsonius
Blue gill	Lepomis macrochirus	Bridled shiner	Notropis bifrenatus
Pumpkinseed sunfish	Lepomis gibbosus	White sucker	Catostomus commersoni
Redbreast sunfish	Lepomis auritus	Mad tom	Noturus spp.
Yellow perch	Perca flavescens	American eel	Anguilla rostrata

DATA: Item 2. Status of Endangered or Threatened Fishes

None known

DATA: Item 3. Description of fish spawning beds, feeding areas, and other significant aquatic habitat.

Throughout each of its principal branches, the Piscataquog River is a relatively steep gradient (0.2 - 1.0 %) stream with a predominantly cobble and gravel substrate. It is dominated by riffle/pool habitat. Several key

tributaries in the watershed support wild populations of Brook trout. Stream survey data collected by the New Hampshire Fish & Game Department (NHF&GD) document the substrate conditions and riffle/pool ratio at selected stations. (See Sections 1 & 4, **APPENDIX G, PISCATAQUOG FISHERIES DATA.)**

The Piscataquog River is a favored fishery of the Manchester Chapter of Trout Unlimited. This chapter has selected the Piscataquog in its "Adopt-a-River Program", and for several years it engaged in stream habitat improvement projects on the South Branch in New Boston. Each spring this segment supports a particularly popular trout fishery.

√ Atlantic Salmon Stocking:

The South Branch, Middle Branch, and mainstem of the Piscataquog River are also important nursery habitats for Atlantic Salmon. The extensive, nearly continuous cobble substrate in the South Branch between Goffstown village and New Boston provide optimal habitat for fry and juvenile stages of Atlantic Salmon. " **The Piscataquog and Souhegan Rivers are considered to be the two most important salmon nursery tributaries in southern New Hampshire.** " (J. C. Greenwood, Fisheries Biologist, NHFGD) (See Sections 2 & 3, **APPENDIX G;** PISCATAQUOG FISHERIES DATA)

The NHFGD and the U.S. Fish & Wildlife Service annually monitor a sampling site on the South Branch of the Piscataquog River. The abundance of juvenile parr collected via electrofishing at this site from 1964 - 1991 has remained stable, yielding higher production levels on average than at other sites. (from information supplied by Greenwood - above, 1/16/92)

In addition to providing relatively high yields, the Piscataquog provides more units of salmon nursery habitat than any other tributary of the Merrimack River, with the exception of the Pemigewasset and Contoocook Rivers. (Merrimack River Anadromous Fish Restoration Policy and Technical Committees, April 1990)

DATA: Item 4. Is fishery naturally reproduced or stocked?

The trout fishery of the Piscataquog River appears to be largely sustained by a stocking program. The reason for this is clear. The stream is a short drive from the state's largest city, Manchester. This portion of the river supports a popular and important fishery. During 1990, the latest year for which records were available, the South Branch was stocked with 4,872 trout. The 1990 records for the Middle Branch were not provided by the NHFGD; however, throughout the 1980s the Middle Branch typically received plantings of 1,500 catchable sized trout annually.

Water temperatures in mid-summer have been shown to rise to 75-80 F. Electrofishing data collected by the NHFGD document the presence of trout at stations in the Middle, South, and North Branches. However, all trout are in excess of 15cm, and therefore, are probably of hatchery origin. Nevertheless, many coldwater tributaries of the Piscataquog support wild trout populations.

√ Example:

In 1991 Dan Little Brook was found to contain numerous wild brook trout at both upper and lower stations. (Goffstown Conservation Commission Stream Survey Data) In Weare; Center, Bog and Dudley Brooks also retain populations of native trout. During cool periods of Spring and Autumn, drop-downs from these tributaries probably contribute to the trout fishery of the main river.

In addition to its trout fishery, the Piscataquog River supports a warm water fishery in its four in-stream impoundments, namely the lakes at Kelley's Falls, Glen, Everett, and Horace.

PART G. NATURAL COMMUNITIES ASSOCIATED WITH THE PISCATAQUOG RIVER

Item 1. IRONWOOD COMMUNITY. (Middle Branch, New Boston)

Along the banks of Dudley Brook and its mouth in Piscataquog's Middle Branch, grows an unusually large number of small trees, the trunks and larger branches of which show smooth, dark grey bark with distinctive muscle-like ridges. Each of these trees, *Carpinus caroliniana,* has the sinewy look of taut muscles and tendons. While this species is not uncommon within the watershed, it is uncharacteristic of these trees to be clustered in such a large group.

At this location hundreds of these Ironwoods grow along both banks of these streams. The fruits, tiny nuts, attract ruffed grouse, wild turkey and squirrels of all local species. New shoots are eagerly sought by Cottontail rabbits and White-tailed deer.

Item 2. New Hampshire's First Prime Wetland
(See Section C, Part C)

Item 3. Great Meadow Sanctuary, New Boston

The significance of this river-connected wetland to bird activities cannot be overstated. The Audubon Society of New Hampshire regularly conducts inventories here for bird sightings. The most recent inventory produced the following notable species:

√ Virginia Rail	*Rallus limicola*
√ Sora	*Porzana carolina*
√ American Bittern	*Botaurus lentiginosus*
√ Least Bittern	*Ixobrychus exilis*
√ Pied-billed Grebe	*Podilymbus podiceps*

This outstanding Buttonbush/Tussock Grass marsh attracts a great variety of birds. Open fields exist along its northern boundary allowing non-intrusive viewing by interested parties. A major portion of this active community is permanently preserved.

Item 4. The Bogs of Bog Brook

Like jewels strung along a necklace, the five boggy marshes which are hitched directly to Piscataquog's North Branch in Weare, display a series of varying wetland habitats. Each is peculiar in feature, each noteworthy in the unusual life-forms produced and supported. In bog # 2, the tops of long-preserved, partially submerged logs have been transformed into exquisite gardens of acid-loving mosses, minature ferns and Rose Pogonias. Along the needled-covered bank of bog # 4 grow the stunning White Moccassin Flower.

SECTION VI

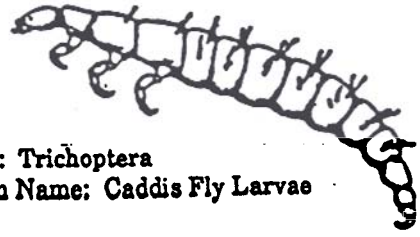
WATER QUALITY

[See Appendix H: NHDES Piscataquog River Quality]

At the request of the Piscataquog Watershed Association, the NH Volunteer River Assessment Program was set up in the summer of 1991 by the NH Department of Environmental Services Biology Bureau,NHDES. It was the goal of the PWA to combine biological monitoring with chemical monitoring to obtain a comprehensive cross-section of the waters and ecosystems along the three branches of the Piscataquog River. A secondary goal was to establish a long term river assessment program which would produce long term biological and chemical trends within the river system.

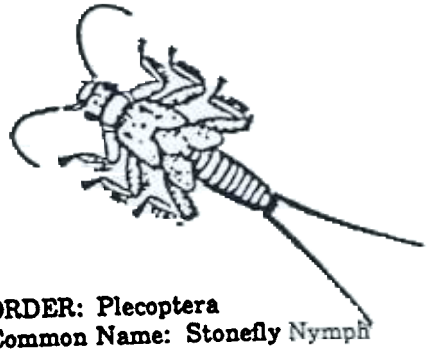
ORDER: Coleoptera
Common Name: Riffle Beetle

The NHDES test summary states in its CONCLUSION OF INITIAL TESTING,

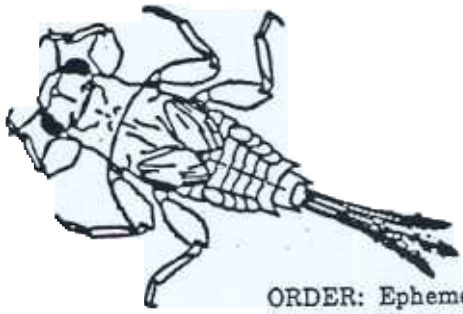


ORDER: Trichoptera
Common Name: Caddis Fly Larvae

"The overall outcome of the July testing effort was excellent. Biological and chemical results were highly favorable and indicate a healthy aquatic



ORDER: Plecoptera
Common Name: Stonefly Nymph

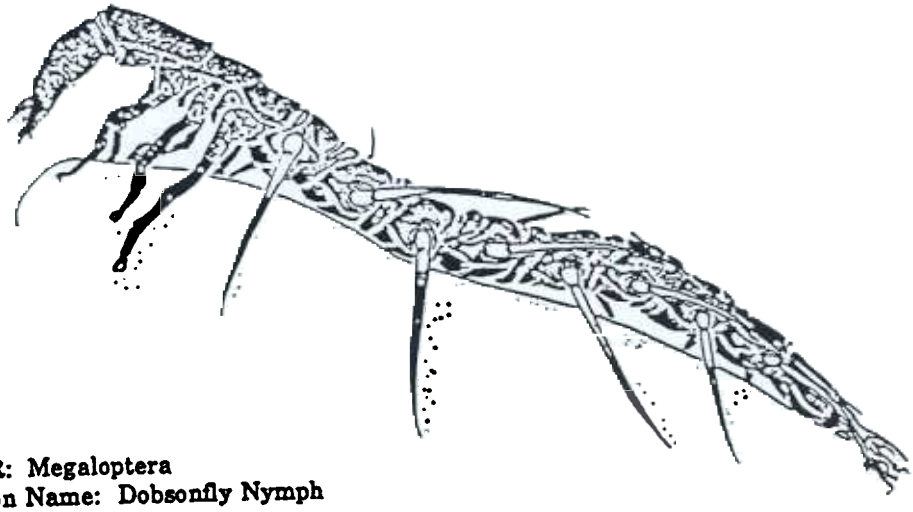


ORDER: Ephemeroptera
Common Name: Mayfly Nymph

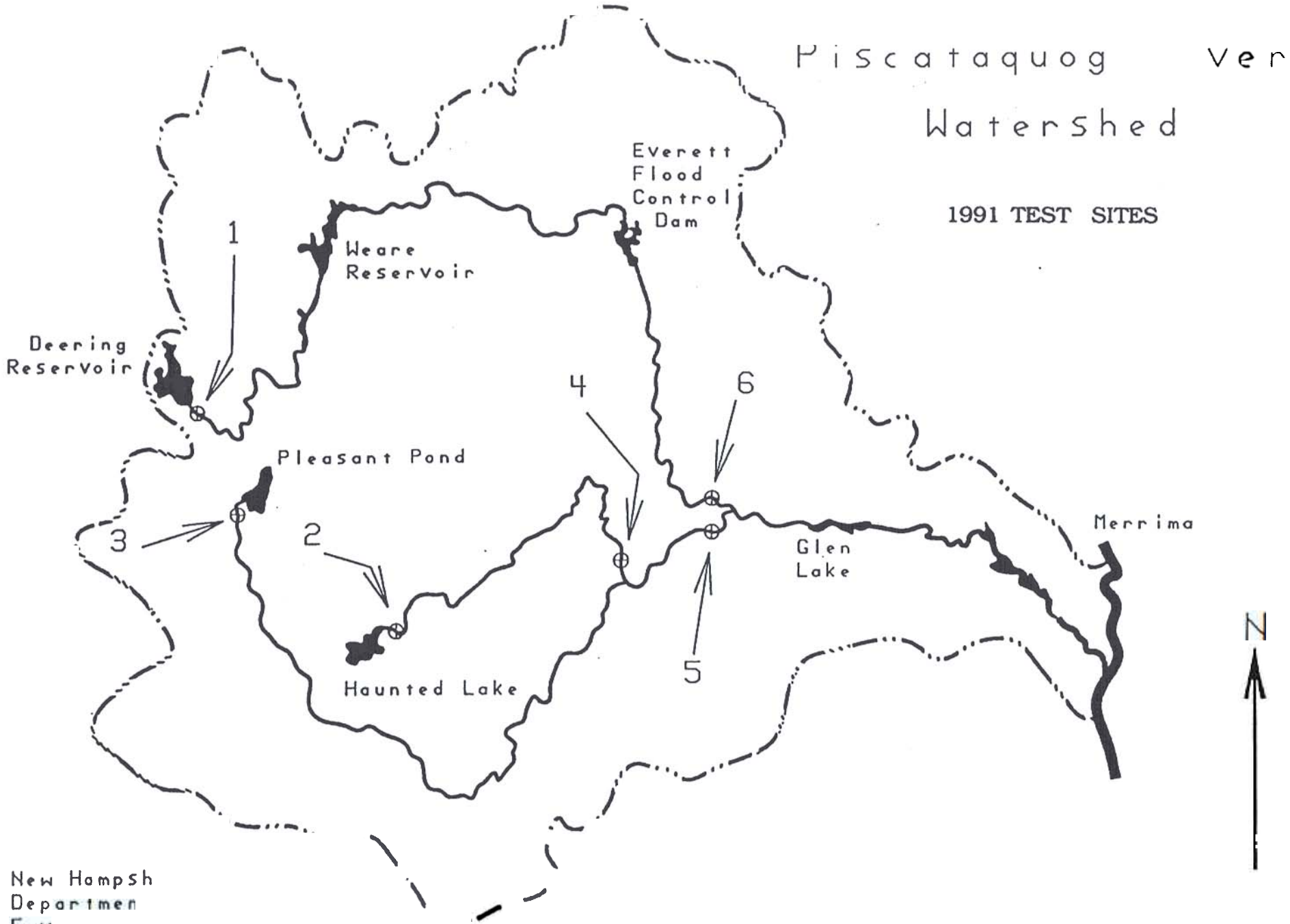
environment. Analyses indicate that macroinvertebrate diversities at the six sampling stations rated good to excellent, with the largest populations being found among the most pollution sensitive organisms; (Riffle Beetles, Mayfly Nymphs, Stonefly Nymphs, Dobsonfly Nymphs, and Caddis Fly Larvae*). This is a stong indicator of favorable water quality."

Testing dates for 1992 are set. The numbers of test sites are to be expanded and sponsors have agreed to fund the effort

* drawings from NHDES Piscataquog River report data, 1991



ORDER: Megaloptera
Common Name: Dobsonfly Nymph



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PISCATAQUOG RIVER WATERSHED: BASE MAP

PROTECTED LAND DESIGNATION LEGEND

/ PWA Piscataqua Watershed Association
/ NEFF New England Forestry Foundation
/ SPNHF Society for the Protection of New Hampshire Forests
/ ASNH Audubon Society of New Hampshire

#1. SPNHF 200 ac. Deering
#2. SPNHF 300 ac. Weare
#3. SPNHF 23 ac. Francestown
#4. Finnigan State Forest 630 ac. Weare/Deering Boundary
#5. SPNHF 100 ac. Weare
#6. SPNHF 32 ac. Francestown
#7. SPNHF 79 ac. Francestown
#8. SPNHF 67 ac. Francestown
#9. Town Forest 800 ac. Dunbarton
#10. SPNHF 34 ac. Dunbarton
#11. PWA 34 ac. New Boston
#12. PWA 30 ac. New Boston
#13. PWA Greenway 14 ac. Goffstown/ New Boston
#14. Goffstown Water District 44 ac.
#15. Land Trust 10 ac. Francestown
#16. NEFF 700 ac. Lyndeborough New Boston
#17. PWA 170 ac. New Boston
#18. PWA 32 ac. New Boston
#19. SPNHF 18Bac. New Boston
#20. SPNHF 77 ac. New Boston
#21. PWA 85ac. New Boston
#22. Town of New Boston 13 ac.
#23. SPNHF 144 ac. New Boston
#24. NEFF 250 ac. New Boston
#25. N H Fish & Game 128 ac. Lyndeborough
#26. SPNHF 11 ac. Mont Vernon
#27. SPNHF 122 ac. Goffstown
#28. PWA 16 ac. Lyndeborough
#29. State of New Hampshire 364 ac. Weare
#30. Town of Francestown 46 ac.
#31. Town Forest 630 ac. Francestown
#32. Town of Francestown 133 ac.
#33. Town Forest 852 ac. Weare
#34. Kingsbury Timber Corp 108 ac. Weare
#35. PWA Boston & Maine 30 ac. New Boston
#36. PWA 30 ac. New Boston/Goffstown
#37. PWA 2 ac. New Boston
#38. PWA 7 ac. Weare
#39. PWA 19 ac. Francestown
#40. PWA 6 ac. Francestown
#41. PWA 24 ac. Weare
#42. PWA 9 ac. Weare
#43. PWA 40 ac. New Boston
#44. PWA 10 ac. Weare
#45. PWA 42 ac. Weare
#46. Town of Francestown 23 ac.
#47. New Boston 30 ac.
#48. Railroad Marsh 63 ac. Weare
#49. Town Forest 132 ac. Greenfield
#50. Town Forest 33 ac. Francestown
#51. SPNHF 40 ac. Francestown
#52. Town Forest 28 ac. Francestown
#53. State of New Hampshire 89 ac. Francestown
#54. Francestown 33 ac.
#55. A S N H Sanctuary 483 ac. Deering
#56. A S N H 9 ac. Deering
#57. A S N H 31 ac. Deering
#58. Town of Deering 38 ac.
#59. Town Forest 39 ac. New Boston
#60. NEFF 143 ac. Deering
#61. Goffstown Conservation 250 ac. Goffstown
#62. Goffstown Water District 750 ac. Goffstown
#63. N H Fish & Game 19 ac. Goffstown
#64. Park Conservation 30 ac. Goffstown
#65. NEFF 115 ac. New Boston
#66a. City of Manchester Rock Rimmon
#66b. City of Manchester Piscataqua River Park 123 ac.
#67. U. S. Government 2000 ac. Weare/Dunbarton

Stream or shoreline
Extent of inundation
Dam
Primary highway
Secondary highway
Local road
Trail or unimproved road
Municipal boundary
Watershed boundary
Subwatershed boundary
Water body
Inundation area
Wetland

HENNIKER
HOPKINTON
WEARE
DUNBARTON
DEERING
GOFFSTOWN
MANCHESTER
BENNINGTON
NEW BOSTON
BEDFORD
GREENFIELD
LYNDEBOROUGH
MONT VERNON

NEW HAMPSHIRE GRANIT

MILES

SECTION VII

OPEN SPACE PROTECTION WITHIN THE WATERSHED

Land protection figures:

- Watershed-wide: 220 square miles / 140,800 acres

Length of river: 136 miles

- Watershed acres protected: 12,000 acres
  - √ North Branch adjacent lands: 2,019 acres
  - √ South Branch adjacent lands: 2,116 acres
  - √ Middle Branch adjacent lands: 80 acres

TOTAL 4,215 acres

The Piscataquog Watershed Association (PWA), the Society for the Protection of New Hampshire Forests, the New England Forestry Foundation, the Audubon Society of New Hampshire, river towns, state agencies, and dozens of private landowners and river stewards have worked for twenty-two years to protect these watershed acres and the Piscataquog River. Many of these acres are open to the public; many are available for multi-recreational and educational uses. Trails stitch some of these lands together. Large tracts of forest are carefully managed for both timber production and protection of natural habitat. All interests are dedicated to maintaining and building the integrity of the river's natural system, especially the river corridor.

Each holding represents a commitment to the future well-being of the Piscataquog River family of life.

Facts worth noting:

- √ **8.5% of the open space within the Piscataquog Watershed is protected.**
- √ **4356 acres of land along the river are protected**
- √ **25 of the protected properties contain more than 100 contiguous acres**
- √ **7 of the protected properties contain more than 500 contiguous acres**
- √ one property, the U.S. Government tract, contains 2000 contiguous acres.
- √ **With the exception of the U. S. Government tract, all properties are inspected on an annual basis and managed for at least one of the following considerations:**

1 protection and enhancement of wildlife habitat

``[SeeAppendixI: Deering Wood Duck Restoration Program]``

2. management of timber resources with production and good land management as the combined goal
3. protection of riverfront land for the public good
4. utilization of specific properties for recreational and/or educational purposes.

SECTION VIII

NATURAL FLOW AND IMPOUNDMENTS

Total river length: 718,080 feet (136 miles)

% free flowing: 95.7%

Impoundments: * 32,240 feet (5.91 miles)

** Lake Horace*	*15840'*	*Kelly Falls*	*5280'*
Christian Dam	*200'*	*Hadley Falls*	*3000'*
Everett	*2640*	*Glen Lake*	*5280'*
Mardens			

DAMS

Source: WATER RESOURCES DIVISION, report date 12/30/91

Category: Hydroelectric

#93.01 Gregg Falls Hydro Assn. Capacity: 3820 KW Head: 60' Lic: exempt

#93.02 Hadley Falls (Goffstown, Town of) 260 KW 15'

150.02 Kelly Falls Hydro Co. 450 KW " 20' 40 yrs 2024

Category: Others: (NORTH BRANCH) WRD report date: 12/13/91

#	town	name	status	height	Type	Impd
62.05	Deering	Deering Reservoir	in operation	25'	Earth	314 ac.
62.06	"	?	not used	12'	concrete	
247.01	Weare	Lake Horace	in operation	34'	concrete	323 ac.
247.04	Weare	Clement Toy	ruins	0	timber	

247.14	Weare	Everett	U. S. Gov't	115'	earth	130 ac
247.15	Weare	Riverdale	U. S. Gov't	10'	concrete	33 ac

MIDDLE BRANCH

167.06	New Boston	Marden	not used	11'	stone/tmbr	20ac
	New Boston	Marden	control canal	6'	concrete	
167.08	New Boston	Luongo	res. hydro	6'	concrete	
167.15	New Boston	Oliver	ruins		stone	

SOUTH BRANCH

85.01	Francestown	Hill	operational	4'	concrete	187ac
85.02	Francestown	Hill	ruins	5'	stone	
147.16	Lyndeborough	W Wdldns	ruins		timber	
167.01	New Boston	Mulligan	ruins		stone	
167.05	New Boston	Parker		15'	stone/tmbr	3ac

SECTION IX

WITHDRAWALS AND DISCHARGES

WITHDRAWAL: In Goffstown Berry Good Farm, a commercial blueberry operation irrigates its plants with river water.

DISCARGES: Hydroelectric facilities operate at run-of-the-river modes. The only non-natural fluctuations of water levels in the river are limited to the North Branch and dam operations supervised by the New Hampshire Water Resources Division. They are as follows:

1. Deering and Lake Horace Dams: WRD inspectors remove spillway boards in October at the request of local lake associations. The boards are put back in place, thus temporarily reducing the flow, to restore lake level in May.

2. Everett Dam. U. S. Government: During any abnormally high-water conditions, water is stored behind this dam. It is discharged in amounts which will not flood downstream areas.

SECTION X

COMMUNITY AND RECREATION RESOURCES

PART A. GENERAL

The Middle Branch and a vast portion of the length of the North and South Branches provide a broad range of subtle and valuable qualities. Aesthetic values alone, as reported in the questionnaire, are the most important of all. Each viewing season along the river's many avenues appeals to senses in different ways. For commuters using the riverside highway, the river provides a menu of different sights. During seasons of cold, seeing the river's icy forms and black, forbidding water can be special indeed. In warmer times, seeking trout or sunfish is memorable. Then there is that picnic time on the river when it is summer and its haunts "umbrellaed" in green to give pleasures. While the Blackfly discourages most Springtime lingering, the river banks' trilliums and the water's trout give tolerance a chance. Even Fall's colors would be less without their watery reflections.

For indirect benefits of the Piscataquog, like any quality stream, one must reach to each side and above its waters to touch its extensive values. Most animals named "wild" benefit in countless ways. Furbearers gulp fishes; scavangers dig morsels; small birds and bats reap insects; sharp-beaked waders stab swimmers and leapers; thirsty tongues come from afar and find satisfaction; aquatic insects and bugs swim in a watery world, when young, and fly above it when adult. Wildflowers, ferns and mosses decorate the corridor like feathers on birds. And we must not overlook the fact that the river's influence reaches far underground affecting the corridor's hidden communities of roots and wormy creatures.

Holders of lands bordering the river often attach a greater value to such properties (as do tax assessors). It is rewarding to know that many of these river-corridor acres will remain undisturbed thus allowing the natural scheme of life to continue.

PART B. THE LAKES

North and South Branches, and Mainstem (flowages): Lakes Deering, Pleasant, Horace, and Glen are all-season recreational attractions. While each location is different, general public uses are similar: swimming, boating, and all-season fishing.

PART C. THE RIVER - SPECIFIC

√ WATER JOURNEY A - South Branch. This is a five-mile, moderate rapids Spring boating journey from New Boston to Hadley Falls in Goffstown. This trip, whether by canoe, kayak, or assorted raft, is negiotable by most boating enthusiasts. Protected forest land on the left and a State Scenic Road for access or egress on the right make the journey scenic, stimulating and safe.

√ WATER JOURNEY B - Middle Branch. In New Boston from Dougherty Lane to Gregg Mill Dam is a four mile trip. While this experience is best done while Spring water levels are fairly high, that portion of the sojourn from Twin Bridge Road in Weare to Gregg Mill in New Boston, where the waters of the Middle Branch run dark and deep and private, can be a fine experience at any time. A side trip on Hillside Brook through its extensive fifty-acre lower marsh is a bonus not to be missed.

√ WATER JOURNEY C - North Branch. The trip from Everett Dan, six and one-half miles, to Hadley Falls in Goffstown requires one short take-out. This river trip is over mostly rapidly flowing flat waters which run through a series of alder meadows, with easy rapids occurring only infrequently. This is a fine and productive bird and furbearer area.

√ WATER JOURNEY D - North Branch. (See Section III, Item C. The canoe journey from Abijah Bridge through Weare's outstanding river-prime wetland is superb.

PART D. FISHING HOLES: unspecified.

The three branches of the Piscataquog River, together with their many tributaries, offer both the novice and knowledgable fisherpersons fine and rewarding fishing. This writer is a fisherman. To devulge those deep, rich locations where large Brown Trout lurk, or, to direct Tom-Dick and Susan to those stretches of stream where dry flies are vigorously attacked,

or to reveal those brooks and river runs where native Brookies can still be taken ----making public any of the above would most certainly breach the unwritten principles of the serious angler. Be assured, however, breakfast is there for those who know this river.

SECTION XI

ACCESS POINTS

√ Lake Horace - Weare: Chase Recreational Park. Excellent access with a paved launch and parking area. Bath houses, restrooms, picnic facilities, swimming beach available. There is a fee to use this town park.

√ Glen Lake - Goffstown: Good access, over a sand-gravel launch. Parking is adequate. No fee.

√ Deering Lake - Deering: Two access points. 1. North end, gravel, steep incline owned by Town of Deering. Limited parking. Condition only fair. 2. South end, gravel, narrow with shallow water. Owned by State of NH. Parking limited. Condition only fair.

√ Clough State Park - Weare: Excellent access with adequate parking. Area restricts motorized water craft. Bath houses, restrooms, picnic facilities are available. There are fees. (See Appendix C)

√ Scoby Pond - Francestown: State boat launch and town beach.

√ Piscataquog Park - Manchester: Boat landing at Rock Rimmon Park.

√ South Branch - New Boston: Five miles of access from NH Route 13.

SECTION XII

SCENIC RESOURCES

WEARE

1. Craney Hill Overlook: An exposed bluff on the south flank of Craney Hill overlooks the length of Lake Horace and much of the North Branch valley.

2. Raymond Cliffs: The caves in this cliff's face and the number and immense size of the glacial boulders there are mentioned repeatedly in local histories and are a major attraction to those who "discover" them. The view east from the cliff summit allows one to scan the Piscataquog Valley watershed east into Dunbarton and Kuncanowet Hills, the Everett Dam complex and its reservoir.

3. River Road Bridge: Site of Weare Cotton & Woolen Factory of 1812, granite abutments of North Weare & Manchester Railroad, and river cascades can all be viewed from a steel bridge.

4. Abijah Bridge: The river crossing here is mentioned early in Weare's history. The broad expanse of New Hampshire's first officially designated Prime Wetland is seen from this bridge. Wildlife activity is often exciting there and the area's aquatic plant growth adds to the viewers' pleasures.

5. A scenic point along Route 77, North Weare: From high above the river, one can view a long series of rapids as the North Branch curves in a hurry to the next place. Many a factory has located here, only to be swept away when the river was bent upon cleaning house. Simon's Quaker Boots Factory, 1823, the young nation's first, was but one of the casualties.

FRANCESTOWN

To quote Francestown's Conservation Commission Chairperson:

'.....of course we think the whole river is scenic.....";

this attitude being generally indicative of the town's stewardship of its natural resources.

1. Poor Farm Road's bridge-by-the-meadow: Here, in reality, is the perfect scene to describe the fine Middle English word "pastoral". From this site country life, in its most idealized simplicity, can be seen and felt.

2. Mill Village: The echoes of Francestown's water-powered millworks, for some, still resonates here. Examples of work of long-forgotten stone masons, even one mill-race arch, reflect the richness of earlier days.

3. Caskie Bridge: The town's long river-meadows, which keep the Piscataquog's waters a secret, finally give up its waters for viewing at this road crossing on the storied Francestown Turnpike.

DEERING

1. Clark's Summit: A memorial to Reverend Clark V. Poling, one of Deering's most revered favorite sons.

Atop the summit, from which the North Branch Piscataquog River receives its source of life, is a large memorial plaque which reveals the circumstances under which Reverend Clark Poling gave his life during World War II. His act of powerful, individual courage is recorded here as quoted from the book ENDURING FAITH The History of the Deering Community Church 1789 - 1989, Johnson, Donald, pp. 292-293.

It was with understandable shock and grief that the townspeople first learned of Clark's death on February 3, 1943, when a German U-Boat sunk the troop ship Dorchester. Gradually the grief over young Poling's untimely death was somewhat ameliorated by the news of the truly heroic way in which he had given his life. Clark Poling had chosen to give his own life jacket to one of the many young soldiers who had forgotten his own. This completely selfless act guaranteed Clark's own death. Clark Poling was one of four chaplains, includng a Methodist, a Rabbi and a Catholic Priest, on board the Dorchester when it sailed from New York on January 22, 1943. When the ship was struck by the German torpedo near Greenland, many of the soldiers on board came up from the sweltering hold without their life jackets or even warm clothing. Many of the young servicemen milling around on the deck of the sinking ship were panic-stricken as many lifeboats capsized and drifted away before being fully loaded with survivors. In spite of near pandemonium the four chaplains remained calm and helped the men load the life rafts and coaxed terrified soldiers over the side of the ship into them. They tried to restore some order and calm to the confusion. The four chaplains gave away their gloves, warm clothing and, finally, their life jackets. According to many survivors, the four chaplains continued to urge the men to try to swim to the life boats. Finally, the four chaplains linked arms and prayed together as the Dorchester went under. That act of ecumenical fellowship has become a symbol not only of complete selflessness, but also of the kind of religious dialogue that took place in the midst of supreme crisis. It was a dialogue of action rather than words.

A Special Medal of Heroism was awarded to the four chaplains on January 18, 1961. It was the only such medal ever given.

The brass memorial on top of Wolf Hill, renamed Clark's Summit, reminds all visitors there of this most unusual man who gave his life that others would live. The panorama from this memorial spot, where the watersheds of both the Contoocook and the Piscataquog can be viewed, is spectacular.

2. Old Stone Bridge: While the view from this historic crossing is limited, it is one of pure quality. Piscataquog's North Branch sweeps silently under the double stone arches there. The river's banks are lined with large White Pine with an understory of many fern varieties which wave over a multitude of moss-covered rocks. In late summer the artists here are dragonflies and Scarlet Tanagers, who weave an ever-changing tapestry above the stream, while native Brook Trout stitch bubbles together in the moving patterns of shaded water.

NEW BOSTON

DAVIS SCENIC DRIVE
In Honor of the Memory of
RONALD CHARLES DAVIS
of New Boston who, as a Sergeant in Company B
of the 8th Infantry Regiment, Gave His Life
in the Honorable Service of His Country
in Vietnam an January 23rd, 1970.
This 3.3 mile Section
of New Hampshire Route 13 has been
Dedicated to His Memory by the Members of the
General Court in Regular Session Convened,
Laws of 1973, Chapter 222. *

* State Scenic Drive deeds recorded in Hillsborough County Registry of Deeds, march 9, 1975, BK 2390, pp. 617, 618, 619, 620.

LYNDEBOROUGH

High Bridge: T[S So th h ch h se top of th ri steepe rge H of mb fly. te: he xpe

GOFFSTOWN

Henry Bridge: F gr ri proach pa fl w f Se th d h [illegible] fl fi b d d

Glen Lake Dam: Th h. fl w: d f: G h D d w B th w: of th ti of fo nf pe ri f pec te:

MANCHESTER

P q g R P k App d J] H W E M h d to w k P h fi fl fi pe he y -s upport gr M La T th rk ri R Wh te they ha li th g ong

Piscataquog River
Mount Calvary Cemetery
Amoskeag Cemetery
MAXWELL POND
TURNPIKE
Boston
River
RAY
General John Stark House
ANDREW ST
WEBSTER
Amoskeag Falls
Amoskeag Bridge
Piscataquog River Boat Landing
West Side Ice Arena
West Side Catholic School
Lafayette Park
Catholic Medical Center
Hidden Dame Bridge
Arena Park Boat Landing
Gossler Park School
Parkside Jr. High School
West High School
Loop Plaza Boat Landing
Granite Street Bridge
Saint Raphael's Elementary School
Pascataquog Cemetery
St. Joseph's Cemetery
Parker-Varney School
Bass Island
Queen City Bridge
Manchester Transit Authority
Motor Vehicles Division
Beaucerville School
Saint Anselm's College
City Hall Annex
Manchester Transportation Center
Post Office
Amoskeag Canal
Amoskeag Bridge
Turnpike Business Route
BEDFORD
AMOSKEAG
THE
114-A
293
3-A
3

Crossing the river on a fine foot-bridge is a treat, especially when one pauses midstream and thinks about the distance the water has traveled as it flows past. It is along this last stretch of river that the waters of 140,000 acres of watershed display their last ripples of identity. Mother River, the Merrimack, is waiting just around the bend.

2. Nazaire Biron Bridge: To the north is the reservoir of Piscataquog Park, with the forest of Rock Rimmon coloring the shore on the east. The outflow from Kelley's Falls quickly rushes under the bridge. The view to the south is of a forest area, proud and wide, acting successfully to camouflage the river in its final stretch of existence.

3. Second Street Bridges: Samuel Bass Island forces the last free flow of the Piscataquog River to split into two branches just before it loses its identity in its mother river - the Merrimack. The history of the Piscataquog began in this place and those attuned to such happenings can still sense those times.

SECTION XIII

COMMUNITY AND PUBLIC SUPPORT

Through the first series of informational meetings to presentations made before each town board, council or association, support has come. Following the first meetings, a questionnaire was sent to river-front landowners Twenty-two percent (22%) of the documents were returned. Eighty-eight (88.5%) indicated strong attachments to the Piscataquog along with support of this nomination.

The sponsor has held meetings in each of the seven towns through which the river flows describing the New Hampshire Rivers Management and Protection Program to selectmen, planning boards, conservation commissions, private clubs, and to the Southern New Hampshire Planning Commission. Support has been overwhelmingly positive.

(See **APPENDIX K - Letters of Support**)~~~~~

SECTION XIV

TOWN GOVERNMENT LAND USE CONTROLS

General: An overall awareness of the Piscataquog River has caused each of the communities through which the river flows to develop and adopt land use controls which afford the river some protections.

What follows is a summary, town by town, of those rules and regulations which apply most directly to river protection.

Weare:

Item 1. Subdivision proposals greater than 5 acres shall include 100 year flood elevation data.

Item 2. All water supply and sanitary sewage systems shall be designed to minimize or eliminate the inflitration of flood waters into the systems, and to avoid impairment to them or contamination from them during flooding.

Item 3: Erosion and sedimentation protections:
Zoning ordinances; Earth Products Ordinance; Non-residential Site Plan Review.

Item 4: Surface Water Flow:

Subdivision Regulations; Zoning Ordinance; Earth Products Ordinance; Non-residential Site Plan Review; Floodplain Development Regulation

Item 5: Aquifer Protection:
Same as Item 4, plus Prime Wetlands Protection

Item 6: Wetlands Protection
Zoning Ordinacne; Non-residential Site Plan Review; Prime Wetlands Protection

Item 7: Wildlife and Fisheries:
Zoning Ordinance; Earth Products Ordinance; Prime Wetlands Designation

FRANCESTOWN:

Item 1: Wetlands Protection
No septic system or building development. Uses limited to agriculture, forestry and recreational uses not requiring alteration of wetlands.

Item 2: Septic Setbacks: Minimum 100 feet of wetlands; 125' from streams.

Item 3: Shorelands: All areas within 500' of highwater on ponds and within 150' on any stream. Only single family housing shall be permitted in the Shoreland Conservation District.

Item 4: Preservation of Natural Features: All subdividers shall identify and give due regard to the preservation and protection of features such as scenic points, streams, aquifers, etc.

Item 5: Sedimentation and Erosion: The design of drainage shall include an analysis of any adverse effects it may have on both public and private water courses. Roadside drainage (ditched) shall be designed to provide for proper flow of storm runoff.

MANCHESTER:

Specific ordinances and regulations which address water quality and/or quantity:

Item 1: Erosion and sedimentation: Earth removal regulations, non-residential site plan review; subdivision regulations.

Item 2: Surface water flows: Zoning ordinances, Subdivision regulations, non-residential site plan review
Item 3: Aquifers: Subdivision regulations, non-residential site plan review
Item 4: Management of existing and potential contaminant sources: Zoning regulations; various ordinance codes; Subdivision regulations, non-residential site plan review

Item 5: Flood protection: Zoning ordinance; Subdivision regulations, non-residential site plan review
Item 6: Wildlife and fisheries habitat: NO LOCAL CONTROLS

NEW BOSTON:

Special subdivision regulations intended to protect and manage surface and ground water resources:

General: Plans must identify the location of all existing and proposed drainage ways, drainage easements, wetland areas and surface water which must not be obstructed or encroached upon.

Item 1: Erosion and sedimentation: Earth Removal Ordinances, non-residential site plan review
Item 2: Surface water flow: Zoning regulations, Non-residential site plan review, subdivision regulations
Item 3: Aquifers: Zoning regulations, non-residential site plan review, subdivision regulations
Item 4: Flooding: Zoning and subdivision regulations, non-residential site plan review.
Item 5: Wetlands: Zoning and subdivision regulations, non-residential site plan review
Item 6: Wildlife and Fisheries habitat: NON LOCAL CONTROLS

GOFFSTOWN:

Zoning Ordinances affecting water quality and quantity can be summarized as follows:

A. Contains overlay floodplain regulations which:
   - √ regulate construction in flood hazard areas
   - √ require new and replacement water supply and wastewater disposal systems to be located in such a way that infiltration and operational impairment by 100 year flood events will be avoided

- √ Has a conservancy and open space district which surrounds water-supplying reservoirs
- √ All multi-family residential dwellings must be connect to both public water and public sewage systems
- √ Earth removal regulations prohibit leaving excavation sites in a condition which could result in sedimentation problems in streams
- √ Aquifer: Maximum lot coverage established

Subdivision Regulations: Specifically for protection and management of surface and ground water:

1. base flood elevation data required in large subdivisions
2. subdivision engineered to minimize flood damage and provide adequate drainage
3. plans must identify bodies of water and all streams

Non-residential Site Plans must prove that development will not:

1. result in sedimentation and erosion problems
2. adversly affect ground water
3. result in any undesirable discharge which might degrade environment

SUMMARY OF GOFFSTOWN REGULATIONS AFFECTING WATER QUALITY AND QUANTITY

Item 1. Erosion and sedimentation: Earth removal regulations; Subdivision regulations; Non-residential Site Plan Review

Item 2. Surface water flows: Zoning Ordnances; Subdivision regulations, and Non-residential site plan review

Item 3. Aquifers: Zoning Ordinance; Subdivision regulations; Non-residential site plan review

Item 4. Flooding: Zoning Regulations, non-residential site plan review

Item 5. Wetlands: Subdivision regulation; non-residential site plan review

Item 6. Wildlife & fisheries habitat: NO LOCAL CONTROLS*

*Note: Neither 1981 Master Plan, nor the 1987 Master Plan update addressed the recreational or fisheries aspects of the community's recreational, natural features or water resources concerns.

SECTION XV

OUTH BRANCH MANAGEMENT hLAN

A DECAD BEFORE ITS TIME

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SECTION XVI

RIVER CLASSIFICATION DESCRIPTIONS - CROSSINGS

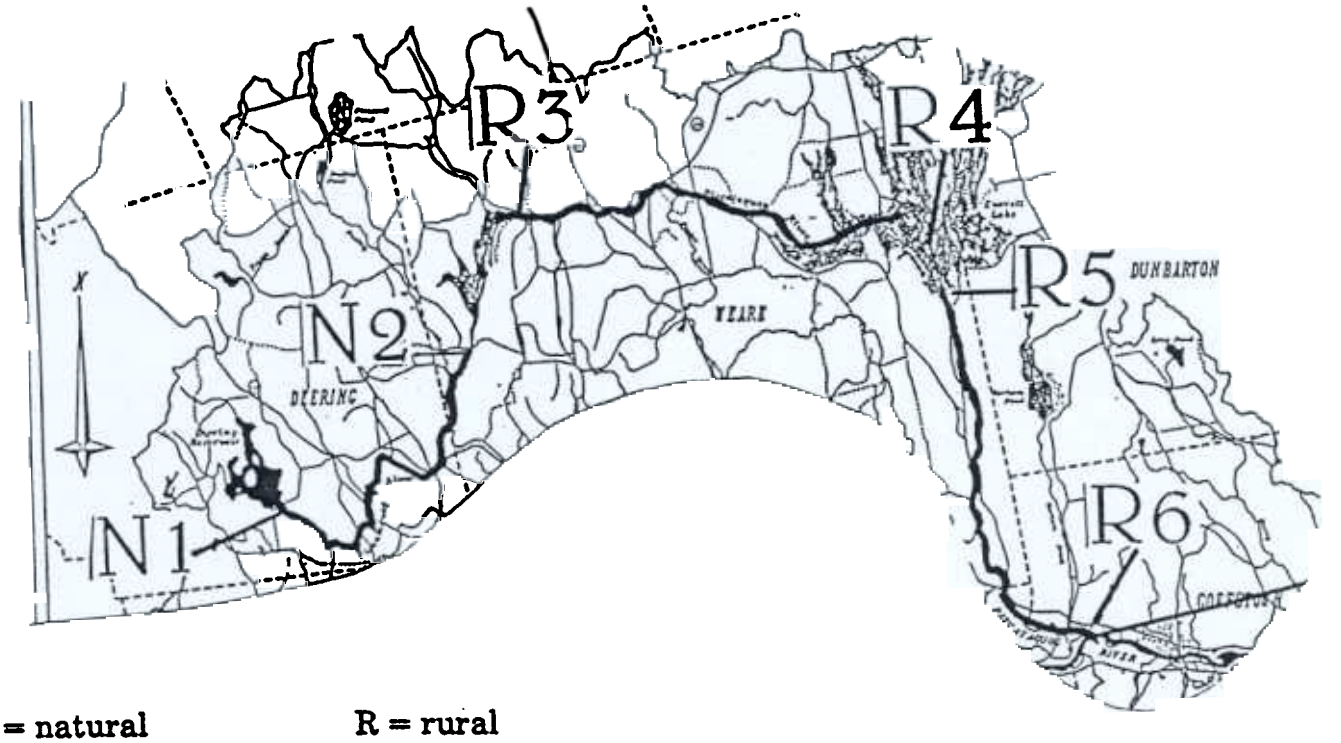
NORTH BRANCH

NORTH BRANCH

N1 to N2
Deering Dam
to
Abijah Bridge

R3 to R4
Horace Dam
to
Everett Flowage

R5 to R6
Everett Dam
to
Confluence



N = natural R = rural

N1 to N2 three crossings:

two - rural gravel
one - single lane state

R3 to R4 eight crossings:

one - single lane state
four - rural macadam
three - rural gravel

R5 to R6 five crossings:

three - rural macadam
one - single lane state
one - rural gravel

MIDDLE BRANCH

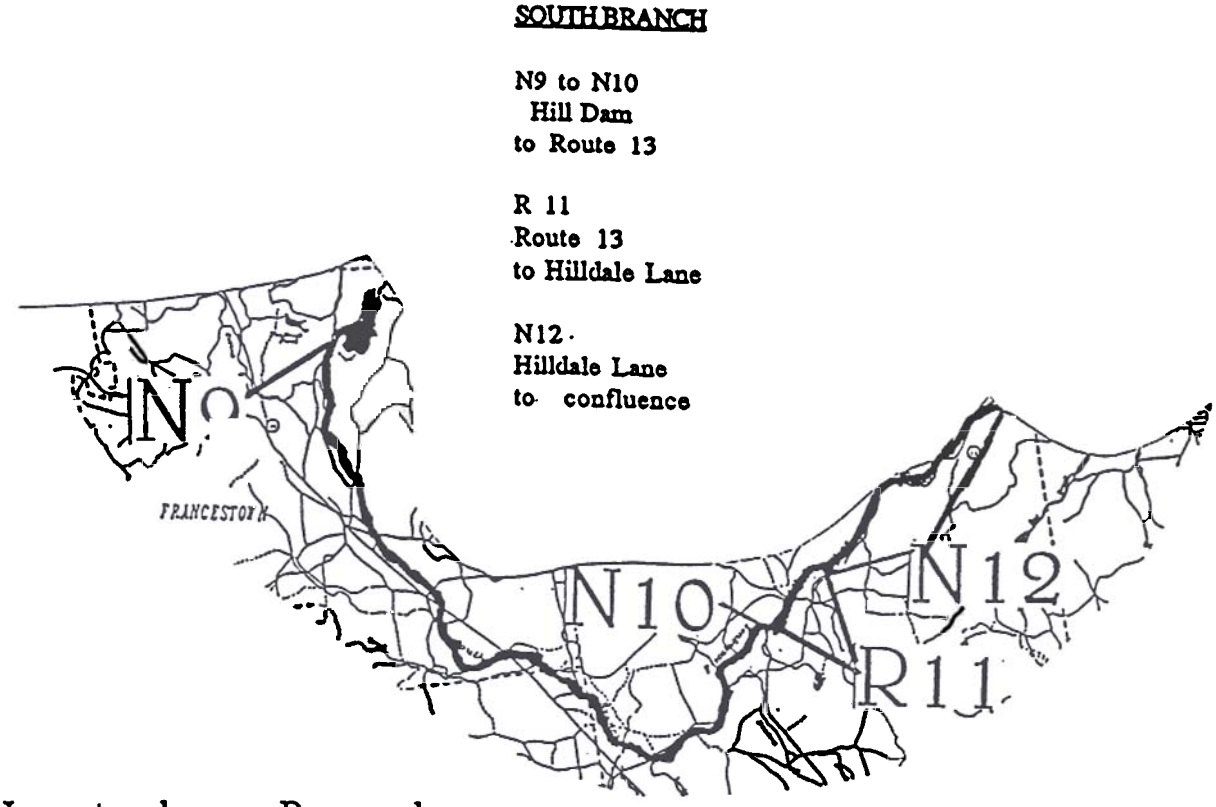
MIDDLE BRANCH

N7 to N8
Scobie Road
to mouth

N = natural

N7 to N8 nine crossings
seven - rural gravel
two - single lane state

SOUTH BRANCH



N = natural R = rural

N9 to N10 eight crossings

five - rural macadam
one - single lane state
three - rural gravel

R11 two crossings

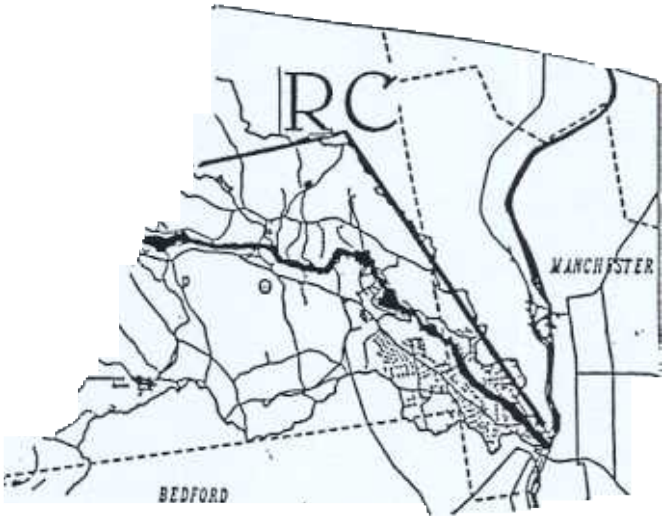
two - single lane state

N12 two crossings

two - rural macadam

MAINSTEM

RC - confluence
to mouth



RC = rural community

RC five crossings

one - single lane state
one - rural macadam
three - city streets

two electrical transmission trunk lines

PISCATAQUOG RIVER WATERSHED: BASE MAP

Classifica

N - Natural
R - Rural
RC- Rural Community

NORTH BRANCH

N1 to N2
Deering Dam
to
Abijah Bridge

R3 to R4
Horace Dam
to
Everett Flowage

R5 to R6
Everett Dam
to confluence

MIDDLE BRANCH

N7 to N8
Scobie Road
to mouth

SOUTH BRANCH

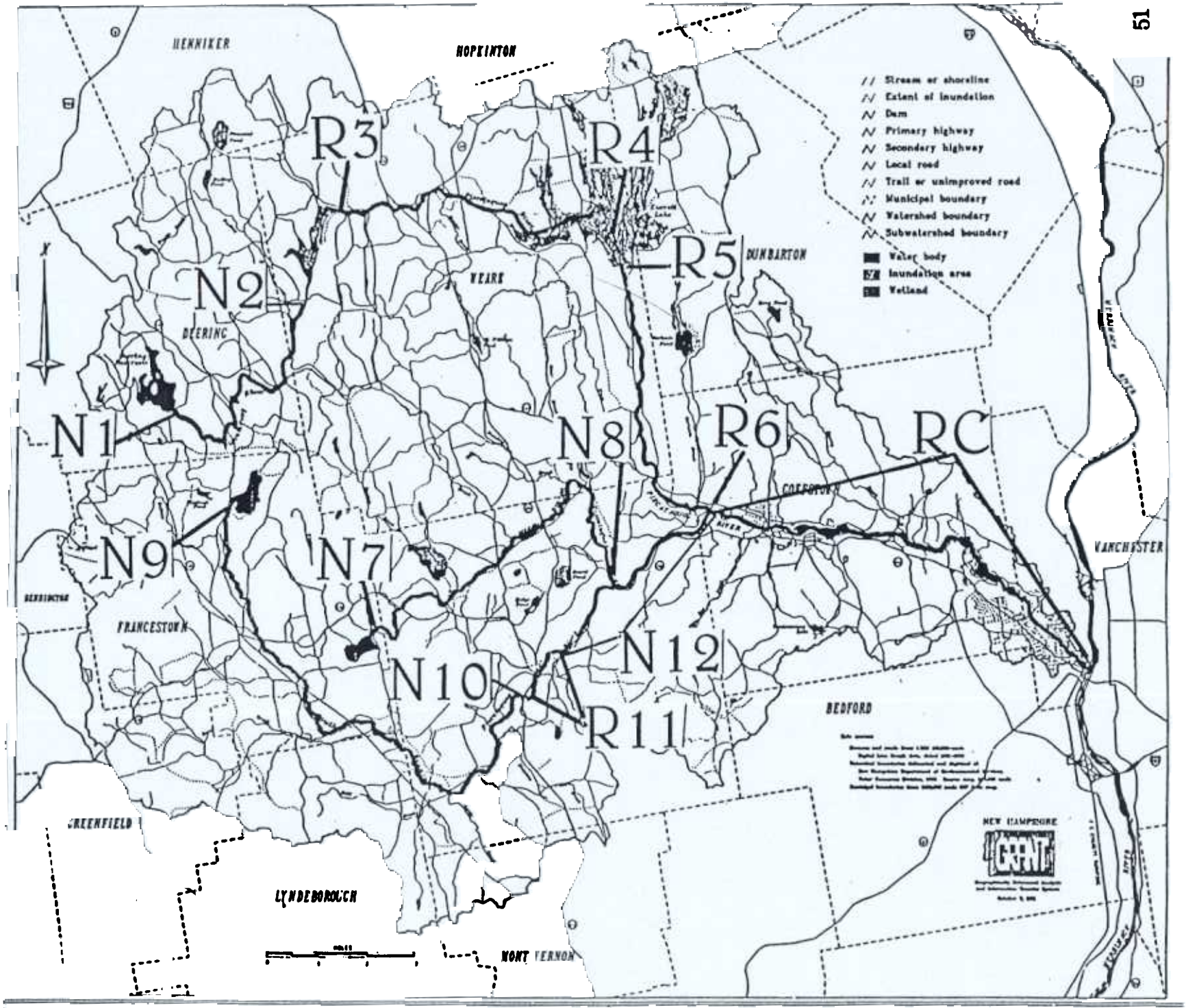
N9 to N10
Hill Dam
to Route 13

R 11
Route 13
to Hilldale Lane

N12
Hilldale Lane
to confluence

MAINSTEM

RC -confluence
to mouth



ACKNOWLEDGEMENTS

The making of this document would have been impossible were it not for the following contributors and participants:

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Robert Todd	New Boston
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and

NH Department of Environmental Services, Biology Bureau
NH Department of Environmental Services, Water Resources Division
NH Fish & Game Department
NH Natural Heritage Inventory
Audubon Society of NH
Southern NH Planning Commission
Central NH Planning Commission
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Planning Board

LYNDEBOROUGH:
Board of Selectmen
Planning Board
Conservation Comm.

MANCHESTER:
SNH Planning Comm

NEW BOSTON:
Planning Board
Board of Selectmen

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Compiled and written by:

Gordon Russell

APPENDIX A

Historic: The First Book

APPENDIX A

HISTORICAL DATA REFERENCE:

THE FIRST BOOK

of Records of the Proprietors of the Township

granted

the General Court of the Province of the Massachusetts Bay to Capt. William Rayment of Beverly, assuring other Soldiers who were in the Expedition to Canada Anno Domini 1690 the Command of Sir Wm Phipps Knight.

This township

lys on the Northern Branch of The River Piscataquoag was granted December 1735 & laid out in February following to 60 Petitioners & on November 24, 1736 was named by the Proprietors, Halestown.

With the granting of the petition of Robert Hale in behalf

of Captain Rayment and Company of Beverly, the petitioners became proprietors of a township of land and each were possessors of an equal share of the lands with the others and also an equal share of the responsibilities and expenses. The site was on the North Branch of the **Piscataquoag River**, a tributary of the Merrimack, northwestward from Amoskeag Falls (now Manchester).

Proprietors meetings were held regularly in Beverly at which one or another of the various Rayments were elected moderator and Robert Hale, the clerk. With the spirit they had shown in rendering service to the Colony in 1690 they set about providing for an orderly settlement on the **Piscataquoag**, as attested by the following minutes from the Proprietors' Records:

> At a Meeting of the Propes of the Township granted by the General Court of the Province of the Massachusetts Bay to Captain William Rayment & others Canada Soldiers Anno 1690 lying on the North Branch of the Piscataquoag River, legally warned, held on April 5, 1736 at the House of John Thorndike, Jun. in Beverly
>
> Lieutenant Nathaniel Rayment was chosen Moderator. It was voted
>
> 1. That the Treasurer who shall be hereafter chosen by the Society shall have such allowance only for his Service as they shall see fit from time to time to make him.
> 2. That he shall not pay any Money out of the Treasury but by an Order signed by at least three of the Committee of Prudentials, & shall keep such Order by him as a voucher.

3. That one hundred & thirty Acres of Land be laid out in a Square Form as hear the Centre of the Settlement as the Land will admit off, to be improved or disposed of as the Proprietrs shall hereafter see fit.

4. That a place be sett apart whereon to erect a Meeting House as near the Centre of the aforesd Square as the Land will admit of & marked for that purpose.

5. That a Cartway be laid out & cleared from the Meeting House Spot to Rumford (Concord) as direct as the Land will admit of.

6. <u>That a Bridge be built as Soon as may be over Piscataquoag River in the aforesd way to Rumford.</u>

7. That a Cart way be laid out & cleared from the aforesd Meeting House Spot as direct as may be to some part of Merrimack River below Amiskeag Falls.

8. That a Horse way be laid out & cleared from sd Meeting House Spot as direct as may be to the North Line of the Township; one in like manner to the South Line & another to the West Line.

9. That a Meeting House shall be built as soon as may be upon the above described Place the Sides & Ends to be of Log & the Roof to be covered with long Shingles, the Dimensions whereof to be thirty Feet in length, twenty five feet in breadth, ten feet stud & ten inches thick.

10. That the House Lotts Shall each contain Sixty Acres.

11. That they Shall be laid out one hundred & Sixty Poles in length & Sixty Poles in Breadth, & contiguous one to the other if the Land will admit of it: otherwise this Rule to be complyed with as near as it may be.

12. That not more than about five acres of Interval Land alder swamp or clear Meadow shall be included in any one home Lott.

13. That the home Lotts for the first settled Minister, the Ministry & School shall be laid out adjoining of the Centre Square.

14. That the Sixty home Lotts shall be laid out abutting either on the Centre Square or one or the other of the aforesd Highways (if the Land admit of it) & as compact as may conveniently be & as like Number (as near as may be) on each waye, & that no Lot be laid out but what is actually fit for a Settlement.

15. That the sum of Twelve Pounds be & hereby is granted to be paid for each Right, to defray the Charge of the Propriety, to be advanced & paid into the Treasury at the drawing of the Right, & that no owner of any Right be admitted to draw it till he has paid twelve Pounds as aforesd.

16. That Robert Hale, Andrew Balch, Anthony Wood, Capt Ebenezer Rayment & Benjamin Cleaves be a Comtee to call Meetings & manage the Prudential affairs of the Society.

19. That John Dodge, Benjamin Rayment, John Lee Junr, Robert Hale & Capt Ebenezer Rayment be a Committee to view & determine (as soon as may be) where the Centre Square shall be, where the Bridge shall be built, where the Meeting House shall stand, & where the Highways shall be fixed & to effect the above Business (if Possible) at one Journey, & to be determined as to the time of their going out by such as undertake the Work.

20. That the last mentioned Committee be a Comtee to agree with workmen.

22. That there be & hereby is given & granted unto Robert Hale Esq. (in consideration of his extraordinary Service done for this Society) three Hundred Acres of Land to be laid out in some convenient Place in the Township, & a Plat thereof to be returned for Confirmation to him, his Heirs & Assigns forever.

23. That the Propriety hereby consent that in as much as divers Persons of this Society have been at the Charge hitherto by themselves & Others in procuring the grant of Several Rights for which neither the Soldiers

themselves nor anyt or their Posterity or Relations have appeared & at the Charge & Trouble of bringing them forward hitherto that the sd Persons who have appeared as aforesd shall respectively have & hold the said Rights & the Proprietors do hereby quit all Claims & Pretence to them, & as far as in them lyes hereby confirm them, except the Right of John Allen for wc Mr. Henry Hale appeared which having been purchased of him for three Pounds by some of the Proprietors is given to Colo John Wainwright Esq & and Right of William Sowerby which Joseph Herrick Jun appeared for & which was purchased of him for three Pounds, by the same who purchased the other (being such as appeared for the other Rights before mentioned) is hereby given to the Honourable Ebenezer Burrell.

NOTE: SUBSEQUENT MINUTES OF THE PROPRIETORS MEETINGS INDICATE THAT THE MEETING HOUSE WAS ERECTED AS PLANNED, THE BRIDGE OVER THE PISCATAQUOG RIVER TO RUMFORD WAS BUILT, ROADWAYS WERE CLEARED OF TREES AND SOME CABINS ERECTED FOR SETTLERS.

(from various collected papers ; G. Russell)

APPENDIX B

WATER POWERED MILLS OF THE PISCATAQUOG

Anecdotes and Facts

complied and translated by: G. A. Russell

THE PISCATAQUOG RIVER

A SUPPLEMENT: THE RIVER'S WATER POWER AND WEARE'S EARLY INDUSTRY* (NORTH BRANCH)

*Source: Tuttle, William, History of Weare, New Hampshire 1735 - 1888, S. W. Huse & Co., Lowell, Massachusetts, 1888

Saw Mills - The First Necessity

"mill sites never fail, there being plenty of water at all seasons."
First saw mill, Proprietors Mill, Robiestown, 1752. Site 14

Saw Mills located on the Piscataquog River in Weare:

1. Nathaniel Martin mill 1755 Site 22 at Oil Mill Village
"Mill a source of great profit, sawing a large amount of oak in ship timber and immense pines in deck plank forty-six feet long."

2. Silas Peaslee 1770

"..at foot of great meadow. The pond must have been of great extent, as the stumps of trees, cut on the ice, stood on the higher parts of the meadow six feet in height, for more than one hundred years."

3. Caldwell mill 1771

"Operated for thirty years."

4. Purington mill 1780 Site 10

In 1831this mill was rebuilt and became the Weare Woolen Factory, and did carding, weaving and fulling. The mill employed twenty hands.

5. Fifield mill 1785 Site 16

Built by Colonel Fifield. " The colonel built a house near by and would move down there from Sugar Hill when he was operating it. He would set off a board, start the saw and then take his gun and go partridge hunting, while the saw was running through one cut. " Operated until 1815.

6. Benjamin Collins mill 1788 Site 17.

"Not a very profitable mill." Closed in 1820.

7. Jonathan Shaw mill 1818 Site 5

Machine shop where iron was wrought using a trip-hammer.

8. John W. Chase mill 1846 Site 6 Skivers

9. Amos Chase mill 1836 Site 7 cabinets

10. Gibson mill 1794 Site 18 clothing

11. Samuel Paige, Jr. mill 1790 Site 13 Rockland

In 1812 this mill was rebuilt and became the Weare Cotton and Woolen Factory, incorporated by the legislature. This company was prosperous, employing eleven males and twenty - nine females. In 1862 they made four hundred, seventy-five thousand yards of cloth. The mill burned in 1882.

12.. Paige - Peaslee mill 1790 Site 3

"Destroyed by a great freshet."

13. John Hogg mill 1790 Site 20 Burned in 1804

14. Edmund Johnson mill 1792 Site 19

"He previously built a grist-mill on this site in 1785, but a freshet cut it off from the road, leaving the mill on an island. Johnson built the saw mill to fill the new channel. Mill profitable until 1957. Sold to Charles Black who modified mill to make furniture in 1866."

15. Elijah and Winthrop Dow 1800 Site 1
One-half mile east of Derring town line. "The Dows run the mill for a few years for building purposes and then let it go down."

16. Raymond mill 1806 Site 21

Foundation of this mill, which was rebuilt in 1821, and went to decay about 1835, was destroyed during the construction of the Army Corp of Engineers Everett Dam, at Weare'e Everett Station, a flag stop on the Manchester & North Weare Railroad line.

17. Winthrop Dow mill 1826 Site 8

"Built by Dow and Enock Gove. Dow soon bought out Gove, who operated the mill during his life. His sons, David and Winthrop succeeded him. They sold to Moses A. Hodgdson in 1860, he to George Foster, who sold one-half the privilege to Abraham M. Flanders. The latter took down the saw mill and erected other mills in its place."

18. Caleb Peaslee	1800	Site 9	Saw mill
19. Nathaniel Martin mill	1756	Site 22	Saw mill
20.Robert Peaslee	1844	Site 14	

Built near 'Boston'. "In this mill were sawed many factory beams fifty feet long." It went to decay about 1870.

THE FIRST SHOE FACTORY IN THE NATION WAS LOCATED ON THE PISCATAQUOG RIVER*

* authenticated by World Book Encyclopedia

21. Simons Shoe Shop 1823 Site 11

The first shoe factory in the young nation was located in Weare. That year local hands manufactured some twenty-three thousand pairs of Quaker Boots. Other shoe shops soon were operating on the river in North Weare. Each shop employed about forty-five men and women.

SHINGLE MILLS POWERED BY THE PISCATAQUOG RIVER

Shingles were as necessary as boards to early settlers. "All shingles were made by hand, the makers being called shingle-weavers. They felled great pine trees, sawed off blocks of suitable length with a cross-cut saw, rived them with a froe, and with a shaving horse. It was a splendid lot of clean, white shavings they piled up behind them, with such a healthy, piney fragrance." These shingles would last more than fifty years. "They did not rot, they only wore out."
Some of the most rotted shingle-weavers simply camped out in the woods while they 'engaged in their labors."

22. James Baker shingle mill 1803 Site 4

"He and his son sawed shingles there for more than forty years."

23. Johnson 1825 Site 19

24. Robert Peaslee 1844 Site 14
(also at his mill at Site 13)

25. Simonses 1845 Site 22

Made shingles in the lower, river-side story of their saw mill.

26. Abraham Melvin Flanders 1866 Site 8

OTHER PRODUCTS MADE IN RIVER-SIDE, WATER-POWERED MILLS:

Clapboards	1856	Lathe Machines	1844
Planing-mills	1840	Axe handles and spokes	1841
Carriages	1810	Sleighs	1810
Wooden dishes	1830	Spinning wheels	1820
Baskets	1823	Sash, blinds, doors	1840
Boxes	1867	Barrels	1820*

*

"He made fish-barrels and a four-horse team carried a hundred and eighty of them at a time to Squog landing, whence they were sent down the Merrimack in boats. Hogsheads and sugar-barrels were shipped to the West Indies. Joseph Webster was the most ingenious cooper in town that ever lived in town; he made vessels of exquisite workmanship no larger than a quart mug."

Matches	1836 (sold for a $1 a gross in 1846)		
Rakes	1850	Shoe-pegs	1841

GRIST MILLS ALONG THE PISCATAQUOG

27. CLEMENT 1764 Site 22 (at Oil Mill Village)

First in Weare.

28. Caldwell 1771 Site 4

Lieutenant Samuel Caldwell - "had a reputation of making the very best flour."

29. Peaslee - Hoit 1779 Site 14 (Proprietor's site)

"While Ebenezer Peaslee owned the mill he employed Jesse C. Blake as miller, who cut the initials of his own name on the ledge under the mill, thus - "J. C. B., 1797, M."

30. Purington 1785 Site 10

Modified many times, the last as a hosiery mill.

31. Edmund Johnson 1785 Site 19

"A great freshet of 1792, which cut a new channel north of the mill next to the road, and Mr. Johnson built a saw mill to fill up the gap. Ever after the grists had to be carried out and in through the saw mill."

32. Benjamin Collins 1788 Site 17
Mill operated for twelve years, then sold to thirteen subsequent owners up to 1888.

33. Raymond 1806 Site 21.

Son of local deacon drowned in the mill pond. Went to decay in 1835.

34. Winthrop Dow 1820 Site 8*

* foot note: "As of 1870 grist mills on the Piscataquog were thus reported: Whole number operating, 2; capaital, $4000; men employed, 2; annual pay-roll, $700; number of bushels of grain ground, 23,000; value, $31,700."

Re: EVAPORATED APPLES: Site 5. "The work is now done by machinery moved by water-power, and the product is considered much nicer than the old-fashioned dried apples."

Re: FISH (entry in Weare Town History, -p. 565)

"Fish were so plenty in the river that they were used in Weare, from 1751 to 1764 as manure, - a practice copied from the Indians. In earlier times it was not uncommon to stipulate in the indentures of apprentices that they should not be obliged to eat salmon oftener than six times a week."

SOUTH BRANCH PISCATAQUOG RIVER

(from: local town histories and handwritten accounts)

Mill sites from Francestown, Lyndeborough and New Boston south to Goffstown.

Site 1. Francestown's first mill.. David Lewis Sawmill, stood in SE part of town, built in 1768. Town History entry: "....old-fashioned mill with 'ancient mill-crank' "

Site 2. Francestown: David Lewis Corn Mill 1772. Near same spot as 1st mill. "Dam was broak" be a freshet 1774. A sign at the mill read: "*Gentlemen All: It is a good thing to make and Mend your Bags well, and keep a good string.*"

Site 3. Francestown: Cram's Oil Mill 1800. Only old mill ever in Francstown. Oil made chiefly from pumpkin and flax seeds. Following entry in Francestown's town history (1758 - 1891) Flax-seed was put through four processes:

....driven between rollers to crush and break the seed; then it was 'ground' as grain is, between wheels of stone; next the substance was put into huge iron cylinders laid horizontally and made to revolve slowly over a fire till sufficiently headed; then the oil was pressed out in a way similar to the method of pressing out cider, and ran down into a tank below. Old people say the price was about $1.50 per gallon. After the oil was pressed out, the hard 'cheese' that was left was ground over again and then made a dry meal, which was sold for 'feed' for stock as cotton-seed meal is sold now. And all this was an excellent thing for the people, as every farmer raised flax, and the seed sold better than eggs or butter at the store.

HISTORIC NOTE: FRANCESTOWN SOAPSTONE FACTORY, incorporated by Legislature, June 22, 1865.

Processing Mill on Piscataquog River at Mill Village.
(from town history)

"Deposit in Francestown is considered the finest in the world.

The Francestown stone, for color, beauty, and evenness, surpasses all other soapstone known. It has no flaws, no grit, no hard spots, no rusty streaks. It can be sawed, or planed, or bored, or cut, like wood; or it can be ground up like grain, and from its greasy nature can be used to lubricate machines, or to mix it with other material and solidify into various forms. Soapstone has been used for making stoves, ovens, hearths, floors, pencils for slates, sinks, mantels. It is not affected by acids, and hence is used for 'sizing rollers' in cotton mills.

People came long distances to get pieces of soapstone for foot-stones for use in cold weather. They were well heated and used to keep the feet warm on a long journey, or to warm fingers and toes at church, or to make more comfortable the bed.

Site 14. New Boston (Butterfield's Mill)

saw and corn mill. Butterfield put in machinery for making boxes, a planing machine and a lathe

Site 15. King's Mill at Paper Mill Village (Gougeville) - burned in 1808

saw and flouring mill pails,mackeral kits. A paper mill followed on or near this site and gave employment to many.

Site 16. Holmes, Kendell and Crombe erected another mill - may have been above or below the King site.

not very successful - made axes and hoes, converted into a carding and clothing mill - more successful.

Site 17. Muzzy Mill, then Warren's Mill.

Saw mill for many years, then used by Page Wilson to generate electricity for the town of New Boston.

Site 19. Neville axe factory. A threshing machine was also operated there.

PISCATAQUOG - MIDDLE BRANCH

Site 1. Morgan & Andrews Bedstead Factory, rebuilt to make bobbins.
I
Site 4. Colburn Mill

saw and shingle mill.

Site 5. Andrew's Chair and Knob Factory

clapboards, with threshing mill attached.

Site 11. perhaps New Boston's first mill: built by Andrew Walker

HISTORIC NOTE:

HISTORY OF NEW BOSTON, Elliott C. Cogswell, Rand & Avery, Boston, 1864, p. 217 Mills.

1st mill in New Boston on Middle Branch, November 25, 1736.
Contractor: Joseph Wright of Boston was to build for the proprietors " with all convenient speed a dam for a saw and grist mill of the following dimensions, viz., two cells to be laid across the river, each sixty-five feet long and twelve inches square, and if any cells are scarfed, each scarf not to be less than three feet, and eighteen cells up and down the river across the others, each a foot square and twenty-seven feet long, the dam to be raised eleven feet and a half high from the bottom of the cross cells, eighteen rafers each twenty-one feet long and nine inches square at least at the smallest end, which is to be framed into a plate at the head of the rafters, and eighteen rafters more to be framed into the heads of the rafters before mentioned, and fourteen feet in length and nine inches square each, eighteen studds of eleven feet each, eighteen more of eleven foot long, eighteen more of five foot in length, each to be seven inches square; each end of the dam to be of stone four feet thick at the bottom and three feet thick at the top, one foot and half above the rolling dam upon a level to a pitch-pine at the each side, and upon the west one level to the hill; the wall of the dam to be double-boarded up and down, and sufficiently gravelled for such a dam; and upon the west side of the river to build the saw-mill to carry one saw, and to find two good saws and all other materials for such a mill to be fitted for working, with a roof frame fitted for boarding; and to make a flume for a grist mill on the east side of the river, in the rolling dam, suitable for a grist mill; all the timbers for the above work to be of good, sound White Oak, except the plates for the mill and the roof, the rolling dam to be planked from the bottom with White Oak plank half-way up the rafters, the remainder may be done with pine, all the plank to be two inches thick; the whole of the above said work to be done well, substantial, and in workmanlike manner, to the satisfaction of said committee; and the mill to be made suitable to saw twenty feet in length, and to build the said dam and mill on the Middle Branch of Piscataquog River aforsaid, at the mill-lot laid out by Jeremiah Cummings..... .

The committee of the proprietors agree to pay Wright the sum of three hundred pounds in bills of credit on the province of Massachusetts Bay." Noted: This contract was completed 1740.

----------OTHER RIVER RELATED INFORMATION
FROM NEW BOSTON HISTORY

lst mill: Middle Branch - sold to Zachariah Emery 1741
Quote : NBHistory "These early mills were of great advantage to the settlers, and no town in New Hampshire has better water-privileges for the kind of mills here needed."

Quote: NBHistory: pp. 105-106
RE: SITE OF FIRST MEETING HOUSE
To: The Proprietors of New Boston:
"Gentlemen:
Pursuant to the vote and desires of the meeting held at Dunstable, in the Province of New Hampshire, the 14th of September, 1752 -

We, the subscribers, have attended the business therein mentioned, at said meeting, desiring us to choose a proper place to build a meeting house in New Boston; we viewed the place or premises, heard the reasonings of the Proprietors and inhabitants of said town, and do report to the said Propriety, that the Lot No. 79, in the second Division, and near the centre of said Lot, on the south side of the Piscataquog River, south of a Red Oak tree, marked with letter C, near the grave of a child buried there, is the most proper place or spot to build a Meeting house in town, according to our judgement.

Matthew Patten
John Chamberlain
Samuel Patten

Witness our hand, July 24, 1763.

MAINSTEM RIVER

Reference: Hadley, George Plummer, History of the Town of Goffstown 1733 - 1920. Vol. 1, pp. 320 - 327

Opening paragraph: "The Piscataquog River was early a source of revenue to the inhabitants of Goffstown; its water-power before the Revolution was realized as an important factor in the future prosperity of the town."

Mill sites:

1. Job Dow 1770 (site of railroad bridge for North Weare and Manchester Railroad) In 1772, White Pine logs were seized at this site by order of the surveyor-general -that being but one cause of the Revolution.

Records of 1837 mention a "gristmill, sawmill, and satinet factory" at this site.

2. Richard Mill 1825

3. Carr Mill

4. Parker/Kendall 1883

(Above four mills taken over by the Hambleton Brothers in 1900. The plants were increased in size; "at present is one of the largest of their kind in New England".)

5. George Little 1799 site submerged by Gregg Falls Dam

6. Moses Little 1774

7. M. Kelley 1774

8. L. Gregg

9. Union Electric Co. incorporated 1893 (Gregg Falls)
First dam constructed 1897 - 55 feet high.
Dam replaced with concrete and steel in 1917 - at the time the largest of its kind in New England.

10. Bunten 1831 (Grasmere)

11. Parker 1791

Deed has entry as follows: "A certain sawmill on the Piscataquog River in Goffstown, within about one-half mile of Goffstown meeting house and four acres and a half of land used as a mill yard, the boundaries of which we are unable to define." ....."including all Youtensils in and about said mill which is originally known by the name of the 'Younity'mill."

12. Capt. Richards Mill Captain Richards commanded Goffstown Company at Battle of Bunker Hill.

MANCHESTER SECTION OF MAINSTEM*

*Potter, C. E., THE HISTORY OF MANCHESTER (formerly Derryfield) in New Hampshire, 1856, p. 718

13. Shirley's Mill (submerged by Kelley's Falls dam)

Dam at Kelley's Falls built in 1890 by Union Electric Company. First dam replaced in 1915 with concrete and steel by Manchester, Traction Light and Power Company.

14. Baldwin Mills (before Revolution)

> Locks on the Piscataquog River: "In 1818, William P. Riddle built a set of locks at the mouth of the Piscataquog. His store and boating house were just below the Piscataquog Bridge and some rods from the Merrimack, and at low water boats could not pass up the Piscataquog. By building a dam across the Piscataquog at the head of Bass Island, a still basin was formed up to the bridge, and by a lock of 100 feet long, the Merrimack was reached by boats and rafts at the lowest stages of water."

APPENDIX C

FLOOD CONTROL ON PISCATAQUOG'S NORTH BRANCH

The Everett Dam

APPENDIX C

CONTROLLING THE PISCATAQUOG'S NORTH BRANCH

U. S.Army Corps of Engineers THE EVERETT DAM*

Everett Dam, located on the North Branch, Piscataquog River protects Manchester and Goffstown, and operating in conjunction with other Corp dams in the Merrimack River Basin, the project also helps protect major industrial centers along the Merrimack River, including Nashua and the Massachusetts communities of Lowell, Lawrence, and Haverhill. Corps estimates put the prevented flood damage total to date for the Everett dam to $8.9 million, Everett Lake consists of an earthfill dam with stone slope protection 2000 feet long and 115 feet high; a gated circular concrete conduit eight feet in diameter and 350 feet long; and a spillway excavated in rock with a concrete weir 175 feet long.

Hopkinton - Everett dams work in conjuction during heavy flood times. Everett Lake on the Piscataquog River is expansive enough to hold excess waters from the Hopkinton Lake basin.

Recreation benefits: At Everett Lake, the Corp has issued a license to DRED to conduct a forestry and fish and wildlife management program on 2957 acres of land. Another 50 acres of land are leased

* US Army Corps of Engineers, New England Division, publication, 1991.

to DRED to operate Clough State Park, which offers 110 wooden and 60 concrete picnic tables; two picnic shelters; about 80 fireplace grills; swimming on 900 feet of beach; boating for canoes, sailboats, and rowboats (boats with motors are prohibited); a boat ramp; an open field for ball playing and other sporting activities; drinking water; and sanitary facilities. About 15-20 miles of old roads at Everett Lake, including old Route 77, Bassett Mill Road, and the lower end of Sugar Hill Road, provide cross-country skiing trails and designated trails for snowmobiling.

Everett Lake offers good year-round fishing for self-sustaining bass, pickerel, and brown bullhead. The state stocks brook, brown, and rainbow trout in the Piscataquog River, which empties into Everett Lake. The 19 acre Stark Pond Waterfowl Marsh Area, which lies on reservoir lands and is managed by DRED, offers fishing for self-sustaining perch, pickerel, and brown bullhead. There is in-season hunting for state-stocked pheasant, as well as ruffed grouse, woodcock, bear, deer, and rabbit.

APPENDIX D

A TIMETABLE OF HISTORY

compiled by: Terry Knowles

N.H. RIVERS MANAGEMENT PROTECTION PROGRAM

PISCATAQUOG RIVER

Historical Resources

"Pike and perch from the Suncook taken,
Nuts from the trees of the Black hills shaken,
Cranberries picked in the Squamscot bog,
and grapes from the vines of Piscataquog."

Bridal of Pennacook
John Greenleaf Whittier

"The Piscataquog River is formed by three streams called the north branch, the middle branch and the south branch."[1] "The branches rise in Francestown, Deering, and Weare, merge in New Boston and Goffstown, and flow into the Merrimack River in Manchester."[2]

is an Indian name, from 'pos' (great), 'attuck' (a deer , and 'quog' (a place); meaning 'great deer place' The correct spelling of word is 'Poscattaquog'."[3] "Before the white men built dams upon salmon, shed, alewives and lamper-eels abounded in its waters; and its valley for many centuries was a noted hunting ground for the Indians."[4] According to local histories the Indians were probably Pennacooks and used an Algonquin dialect.

The early settlers in the area found the Piscataquog's usefulness as a source of food and potable water to be of secondary importance. The primary use made of the river in the late 1700's and into the 1800's was as a source of power for numerous mills and shops. Each of the towns along the Piscataquog built dams to harness the power of the river turning that power into the driving force behind commercial development in these areas.

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the river into the late 1800's and provided both employment opportunities and economic development benefit for the town.

The middle branch continues from Francestown into New Boston where "In the first census, dated September 25, 1756, it is reported that within the limits of the township there was included one saw and grist mill with dam completed. This mill and dam was built on the Middle Branch of the Piscataquog a little north of the mill now standing . .and is supposed to be the first mill built in New Boston."[9] The south branch also passes through a small portion of the town. The north and south branches of the Piscataquog unite near the western boundary of Goffstown and flow through Goffstown to the Merrimack in Manchester. The History of the Town of Goffstown reports that at one time there were eight mill privileges on the river in the town.

The river's end comes in Manchester where it merges with the Merrimack River. There was a village located along both banks of the Piscataquog in a section of town which was originally part of the town of Bedford until it was annexed to the City of Manchester in 1853. Here the Piscataquog was used primarily for the transportation of cargo and "In 1816. .Wm. P. Riddle built a large store and boating-house at Piscataquog bridge; and in order to facilitate his increasing boating business, in 1818 he built the locks at the mouth of the Piscataquog."[10]

It was eventually an act of nature which put an end to the era of mills and factories built along the banks of the Piscataquog. A hurricane accompanied by high winds and heavy rain struck the area in September of 1938 which caused the river to swell and eventually overflow its' banks and flood surrounding areas. Swept away were the dams and locks used to harness the river's flow, gone were most of the mills, factories and homes along its' banks; in its' wake the flood left economic and personal devastation and death. The Village of East Weare received some of the most dramatic damage of any area affected by the flood. The state and local authorities were concerned that in the future storms could once again cause the flooding situation and possibly result in additional damage and loss of life. "Following the disasterous floods of 1936 and 1938. .the building of a flood control project became a vital subject for discussion. In 1940 the Army Corps of Engineers gave a definite project report for the Hopkinton-Everett Reservoir. The plan of development is to construct a dam at Everett Station in East Weare on the Piscataquog River. ."[11] The project was commenced in 1957 with the moving of cemeteries and the taking of property and homes by eminent domain. The Everett Dam, a forty foot concrete structure, was built by the Army Corps of Engineers as part of the Hopkinton-Everett flood control project. This structure proved its worth in the spring of 1987 when days of rain and snow melt caused the reservoir to rise dramatically The locks and gates of the dam held back the water and averted what could have been a dangerous situation for the towns and cities located within the flood plain.

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A Management Plan for the South Branch of the Piscataquog River g

"-To promote land uses that retain the character of the landscape without significantly altering the biological diversity of the aquatic and terrestrial environments and maintain the stability of existing river flow characteristics

-To adopt land management policies which recognize the scenic and recreational values of the South Branch while maintaining the economic value of the adjacent land

-To assign priorities in the preservation of land according to its significant ecological and cultural quality through permanent public, private non-profit ownership or easement arrangement

-To development land management policies which reflect the rationale that the South Branch is but a part of the larger Piscataquog Watershed and that significant changes in its environmental characteristics irrespective of municipal boundaries) will have a resounding impact on other areas of the watershed

-To allow a limited pedestrian public access, in areas where the environmental balance is endangered minimally

-To promote the recreational use on town-owned land when its use will offset the trespass of private property.

-To work in cooperation with state and federal authorities and Trout Unlimited in developing plans for improved fishing environments

-To permit uses associated with the manipulation of water as long as there is no permanent ecological impact

-To prohibit the use of any type of motor vehicles on pedestrian ways

-To provide an educational format from which the public may come to learn and respect the sensitive balance of the South Branch and understand that its values as a natural resource is not without inherent limits."[13]

The Piscataquog River is also addressed in the Water Resource Management and Protection Plan, Town of Weare, New Hampshire (Weare Master Plan amendment, adopted 06/26/90). The North Branch Watershed and the Middle Branch Watershed are identified as potential future water resources for the town. In the RECOMMENDATIONS FOR NEW OR REVISED POLICIES AND PROGRAMS section of the plan it is stated: "5. The Weare Planning Board will work with its counterparts in the towns of New Boston, Goffstown, Dunbarton, Henniker, Hopkinton, Deering, Francestown to promote land use management concepts that are consistent with the mutually beneficial need to protect common watersheds, wetlands, and aquifers."[14]

Finally, the Piscataquog River is identified in the New Hampshire Rivers Management and Protection Program statute, RSA 273:3 III. (g as a river to be considered for the program, the intent of which is to ensure that "the scenic beauty and recreational potential of such rivers shall be restored and maintained. " [15]

Terry M. Knowles

January 10, 1992

FOOTNOTES

1. History of Weare, New Hampshire 1735-1888, William M. Little, page 7.

2. Piscataquog, Handbook of the Piscataquog Watershed Association, April 1979, page 3.

3. Ibid [1] at page

4. Ibid [1] at page 8

5. Frances' Town, A History of Francestown, New Hampshire, John R Schott, 1972, page 51.

6. Ibid [5] at page 51.

7. Ibid [1] at page 529.

8. Ibid [1] at page 7.

9. Those Wonderful Years 1763-1963, Commemorating the Bi-Centennial Anniversary of New Boston, New Hampshire, page 15

The History of Manchester, Formerly Derryfield, in New-Hampshire, by C.E. Potter, 1856, page 673.

11. Town History of Weare, New Hampshire from 1888, by Helen E Dearborn, 1959, page 264.

Ibid [2] at page 4.

A Management Plan for the South Branch of the Piscataquog River, Summary Report prepared by the Southern New Hampshire Planning Commission, March 1982, page 8-9.

Water Resource Management and Protection Plan, Town of Weare, New Hampshire, prepared by the Southern New Hampshire Planning Commission, January 1990 (Weare Master Plan amendment, adopted 06/26/90), page 88.

New Hampshire Revised Statutes Annotated, Chapter 483, HB 1432-FN (1990) and HB 674-FN (1991).

APPENDIX E

NEW BOSTON'S MILLS & FACTORIES

compiled by: Charles and Rena Davis

NEW BOSTON'S MILLS AND FACTORIES

In the first census, dated September 25, 1756, it is reported that within the limits of the township there was included one saw and grist mill with dam completed. This mill and dam was built on the Middle Branch of the Piscataquog a little north of the mill now standing at Clyde Heath's and is supposed to be the first mill built in New Boston. The contract for the mill was made November 25, 1736, and the contractor was Joseph Wright of Boston. He was to build for the proprietors a dam for a saw and grist mill. For this they paid him 300 pounds. The mills were completed in 1740, and in 1741 they were sold to Zackariah Emery. How long these mills were operated is not known.

The second mill to be built was Walker's mill in 1751. This mill is at Hadley's corner and is still standing at the rear of Leland Vadney's house. This is also known as Tucker's mill. (If the date is noted, both of these mills were erected before the first census, so it is very possible that only Walker's mill was standing in 1756). The proprietors made an agreement with Walker that he should have the right to flow, for seven years, the lowlands farther up stream so as to provide a supply of water during the dry season, and they would provide the mill-irons. Walker became very unpopular with the settlers, as he preferred to sell to outsiders where he could make more profit. The proprietors threatened to take away his mill-irons if he didn't stop infringing the rights of the settlers. Many other nearby towns used these mills to saw their boards and grind their grain.

Also on the Middle Branch, Leslie Gregg built a saw and grist mill before 1770. This site is supposed to be near the old Alvaro Hadley house. The first carding mill in town was connected with this mill, which operated for many years. New Boston has had many Gregg mills through the years. The first was the one mentioned above, located below Tucker's mill. The old Gregg mill at Clyde Heath's was built by Joseph and Daniel Gregg. John H. Gregg's mill was near Howard Woodbury's, and at the bridge near Harold Todd's was located John Gregg's mill and dam.

Over on Cochran Brook Deacon Thomas Cochran built a corn mill. The exact date is not known, but it is noted that, in the first town meeting of 1763, it was voted "that a pound shall be built by the corn mill, and that Deacon Thomas Cochran shall be pound master." Without a doubt this is the same corn mill which must have been built prior to 1763.

Deacon Christy, at an early date, built a saw mill over in Gougeville near where the paper mill was located. Later this saw mill became better known as King's mill. It burned in 1808 and was rebuilt and made into a flouring mill. King also added machinery to make pails.

It was about 1880 that saw and grist mills became very numerous along the rivers and streams. In the 1820 census New Boston had 25 sawmills, but

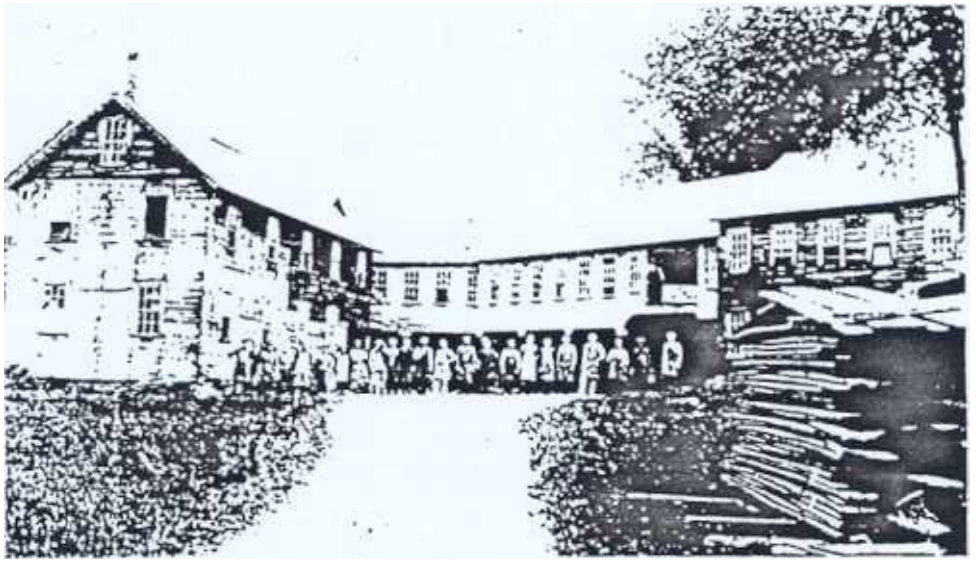
the largest number ever to be in town at one time was 33. Nine of these were located on the South Branch, nine on the Middle branch and the others scattered on various brooks.

Only a few of these mills are standing at the present time and none are in operation. The remaining mills are: Walker's mill near Vadney's, which continued to saw lumber until about 1950, Old Gregg mill at Heath's, George Goodwin's mill on Old Coach Road, Walter Kirsch's box shop, also known as Marden's and later Sutherland's mill, and the old Hopkins mill opposite Rev. Welch's on the Amherst Road. The old saw in this mill was purchased by Henry Ford and removed. The only remaining grist mill is the old Reed McLane mill, for several years used as a Merrimack Farmers Exchange store, and now being converted into a comfortable home by Randy and Gail Parker.

Near the old Butterfield bridge was the Ira Gage mill. This was a corn and saw mill, but he sold half interest to David Butterfield, who put in machinery to make boxes. Later they added a planing machine and a lathe so that furniture, mostly for children, was made here. They employed more than 20 people at one time and were in operation for many years.

The tall brick chimney in Gougeville is the only reminder to New Boston that it once had a flourishing paper mill. No records tell the actual date of its building, but in 1869 it was known as the Union Paper Co., and in 1876 it ran under the name of Valley Paper Co. It ceased operations in about 1880 when it was supposed to have been struck by lightning and burned.

This site on the river had always been busy, for the first manufacturing in New Boston was the wire factory erected here by Holmes, Kendell and Crombie. This was of short duration, but axes and hoes were also made there. After a few years this plant was made into a carding and clothing mill by John Gage and later by Marshall Adams. Another industry in Gougeville was Moses Wood's gun and rifle shop. This building was near the paper mill also. Wood operated this for many years until the breech-loader replaced the old muzzle loader.



Beyond Todd's corner near Chittim's was the Andrew's Chair and Knob factory. There was also a threshing mill here, which later became Alfred Wilder's toy carriage shop.

The axe factory of George D. Neville in 1846 made axes of an exceptional grade. It was located in the small building in back of the Thomas A. Edison Bird Museum. A threshing mill was situated here, too.

Walter Kirsch's box shop was built by Peabody in 1810 as a sawmill. For a while it was also a carding mill. Neil and Rodney McLane made doors there for a short time before Fuller and Wisewell made looking glass and picture frames. While Sandy Smith had machinery in it for knitting hosiery, it burned. It was rebuilt and later became George D. Marden's mill. Following Marden, Alec O. Sutherland operated this mill for many years. In 1850 Neil and Rodney McLane constructed a dam and built a door factory near where Henry Friedrich lives. This building was later used by Farley to make piano cases, and still later became Wilson's electric plant.

New Boston had other mills that might have been of short duration but were very important to the early settlers. Tanneries were in this category. Near Abraham Wason's farm was a tannery and two were located on Meeting House Hill. One was at Sidney Hill's home, which today is Fletcher Wason's residence. Here, also was a slaughter house where they salted meat and then tanned the hides. The other tannery was located on the small stream at Charles French's. This was Clough's tannery. New Boston also had a Bark Mill which supplied these tanneries with the bark they needed to tan leather. After use the bark was spread on the roads carpeting them with a soft cover for horse and carriage travel.

Many homes in New Boston had electric lights at an early date because of Wilson's power plant, and in 1895 the town voted to have a contract with Kimball J. Wilson and Son to light the streets of the village with electricity. After Kimball's death, A. Page Wilson continued to manufacture electricity until October, 1913 when Manchester Traction, Light and Power Co. supplied the town. Wilson had his generators located in the old Farley piano case factory, as mentioned above. The dam washed out and the building was in bad condition, so Wilson moved his generators over to the old Muzzey Mill (Vaughn's red house on Lyndeboro Road), and it was here he ceased generating electricity when he sold his franchise in 1913. When the water at the dam was low, Wilson had a gasoline engine generator which he used for making power, and this he sold to the Best farm in Mont Vernon.

In the present Gamewell Building, men's neckties were made in the 1940's. Originally this building had been J. N. McLane's blacksmith, with a carriage paint shop on the second floor. It was also Perry Smith's garage for a number of years. At the rear of this building is the site of Abraham Wason's steam cooper shop, which also made barrel heads in 1883. It was from this shop that came the sparks setting the big village fire of 1887.

Today the only manufacturing in town is the making of fiber glass boats in the old Whipple cement barn. Through the years New Boston has had a wide variety of industries and even if many of these were small, they all added their importance to the history of New Boston.

By Charles and Rena Davis

APPENDIX F

AMONG THE RAREST OF WILD ORCHIDS

protected in the Piscataquog River Valley

New Hampshire Conservancy News

Conservation Through Private Action

Fall 1991

Rare Wild Flower Protected

A location in Weare provides habitat for one of the rarest plants in the eastern United States - one of the six species found in New Hampshire that are included on the federal list of endangered species. This plant is the Small Whorled Pogonia. The world's best populations of this plant are found in Maine and New Hampshire - an example of a species whose future truly depends upon the conservation decisions and efforts we make here.

A few years ago, Gordon Russell, of the Piscataquog Watershed Association (PWA), learned of the existence of the rare plant on a trip to the site with Frankie Brackley, a botanist with the New Hampshire Natural Heritage Inventory. We are not revealing the exact site of this project because these plants have been subjected to indiscriminate collecting by collectors. Thanks to the efforts of Mr. Russell, PWA was recently able to negotiate a donation of the property. Because of the need to monitor the status of the plants and mange the habitat of this rare flower, the PWA will donate a conservation easement on the property to The Nature Conservancy.

The transaction will be finalized later this winter. Right now, we are working on an Easement Baseline Document - official documentation of the current condition of the property. This information is used as a baseline in order to adequately perform the long-term monitoring that is the responsibility of the holder of a conservation easement.

We will share with PWA the responsibility for managing this exceptional natural area. In this way, we combine local ownership with the protection and stewardship resources of The Nature Conservancy.

To all of our partners in these projects, we say "Thank you." We look forward to working with you all again.

We believe that partnerships are surely the key to the great challenges that face conservation as we move forward. Our approach today is to act on that belief - to complete successful projects through successful partnerships. We take pride in the ability of the conservation community to work together on behalf of the natural community.

APPENDIX G

PISCATAQUOG FISHERIES DATA

1. 1990 TROUT STOCKING NUMBERS
2. 1990/1991 SALMON STOCKING NUMBERS
3. STRATEGIC PLAN for the RESTORATION of ATLANTIC SALMON to the MERRIMACK RIVER BASIN 1990 through 2004
4. SUBSTRATE CONDITIONS

SECTION 1.

PISCATAQUOG RIVER TROUT STOCKING NUMBERS - 1990*

* species, size and location varies

River Branch	Town	Number	Pounds
South Branch	Goffstown	1800	1100
South Branch	New Boston	3072	1735
North Branch	Weare	1560	650

SECTION 2.

1990 - 1991 SALMON STOCKING NUMBERS*

* fry from North Attleboro National Fish Hatchery

	1990	1991
Priority I Section	# fry stocked	# fry stocked
South Branch	157,733	155,000
Priority II Section	# fry stocked	# fry stocked
North Branch	0	95,000
Middle Branch	24,101	26,400
Mainstem	16,621	17,600

SECTION 3.

STRATEGIC PLAN FOR THE RESTORATION OF ATLANTIC SALMON TO THE MERRIMACK RIVER

1990 THROUGH 2004*

*MERRIMACK RIVER POLICY
AND TECHNICAL COMMITTEES
April 1990

Note: Following excerpt from VII. PROGRAM OBJECTIVES AND STRATEGIES; VII.1 Fish Culture

V.3 ATLANTIC SALMON NURSERY HABITAT

The New Hampshire Fish and Game Department, the U. S. Forest Service, and the U. S. Fish and Wildlife Service have identified approximately 68,000 production units of Atlantic salmon nursery habitat with the Merrimack River Basin. (See Table 5)

Table 5. ATLANTIC SALMON NURSERY HABITAT IDENTIFIED WITHIN THE MERRIMACK RIVER BASIN*

* showing Merrimack River (main stem) only

Tributary/River Reach	# 100syd units
Merrimack River (mainstem)	
Sewalls Falls	3,000
Soucook River	200
Suncook River	100
PISCATAQUOG RIVER	**4,969**
Souhegan River	3,933

SECTION 4. RIFFLE/POOL RATIOS AND SUBSTRATE CONDITIONS AT NHFGD FISHERY SURVEY STATIONS ON THE PISCATAQUOG RIVER

Branch	Town	station location	Riffle/Pool	substrate B *	substrate R *	composition G *	composition S*
mainstem	Goffstown	behind Cty Correc. Fac	90/10	23	24	26	27
mainstem	Goffstown	1.5 mi below Henry Bridge	53/47	10	32	40	18
North Branch	Deering	Rte 149 Crossing	2/98	15	5	30	50
North Branch	Deering	Bartlett Bridge	0/100	5	5	20	70
Middle Branch	Weare	River Rd.	80/20	50	30	15	5
Middle Branch	Weare	Cutter Rd.	30/70	5	30	30	35
South Branch	New Boston	Lyndeboro Rd.	20/80	20	50	10	20
Middle Branch	New Boston	Rt. 77 bridge	65/35	5	65	15	15
Middle Branch	New Boston	Colburn Rd.	75/25	30	40	15	10

* substrate: B = boulder R = rubble

* composition: G = gravel S = sand

APPENDIX H

PISCATAQUOG RIVER WATER QUALITY

New Hampshire Department of Environmental Services
Waters Supply and Pollution Control Division
Biology Bureau

Piscataquog River Quality

For The Piscataquog Watershed Association

December 1991

NEW HAMPSHIRE
DEPARTMENT OF
Environmental
Services

Piscataquog River Quality

For The Piscataquog Watershed Association

New Hampshire Department of Environmental Services
Water Supply and Pollution Control Division
Biology Bureau
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Robert W. Varney
Commissioner

John Dabuliewicz
Assistant Commissioner

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Natalie Landry
Jody Connor
Coordinators, New Hampshire
Volunteer Lake Assessment Program

Stephen C. Landry
Matthew P. Bowser
Principal Authors

December 1991

Printed on Recycled Paper

New Hampshire Volunteer River Assesment Program

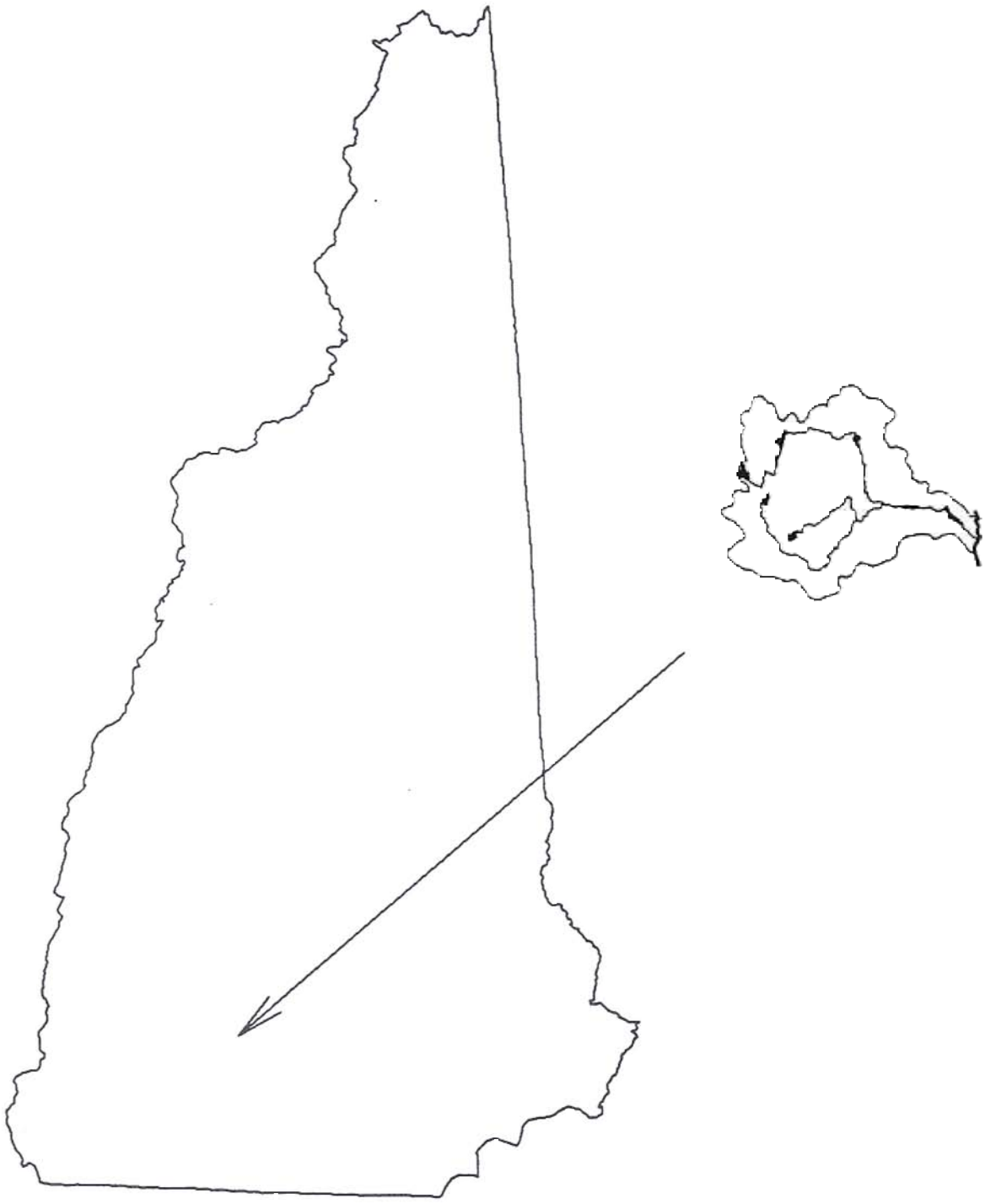
The New Hampshire Volunteer River Assessment Program (NHVRAP) was established in the summer of 1991 by the Department of Environmental Services Biology Bureau. The volunteer stream monitoring group from the Piscataquog Watershed Association expressed a desire to combine biological monitoring with existing chemical monitoring to obtain a comprehensive picture of the ecosystems within the Piscataquog River. Also, NHVRAP would begin to establish long term biological and chemical trends to monitor positive or negative impacts upon the river and its ecosystems.

The design and implementation of VRAP was conducted under the supervision of two University of Massachusetts summer interns employed at the Biology Bureau. Both have previous experience with macroinvertebrate collection and identification as well as all chemical parameters involved in this program.

VRAP adopted the biological methodologies of the Izaak Walton League of America IWLA). By following the IWLA's technique of macroinvertebrate monitoring and accurately filling out the macroinvertebrate survey form, volunteers are able to diagnose the river quality at individual stations

The Piscataquog River Watershed is located in south central New Hampshire and lies within Hillsboro county (Map 1).The Piscataquog Watershed Association had been conducting chemical analysis at the headwaters and mouths of three branches of the Piscataquog river; the

P scataquog R ver
Watershed Locat on

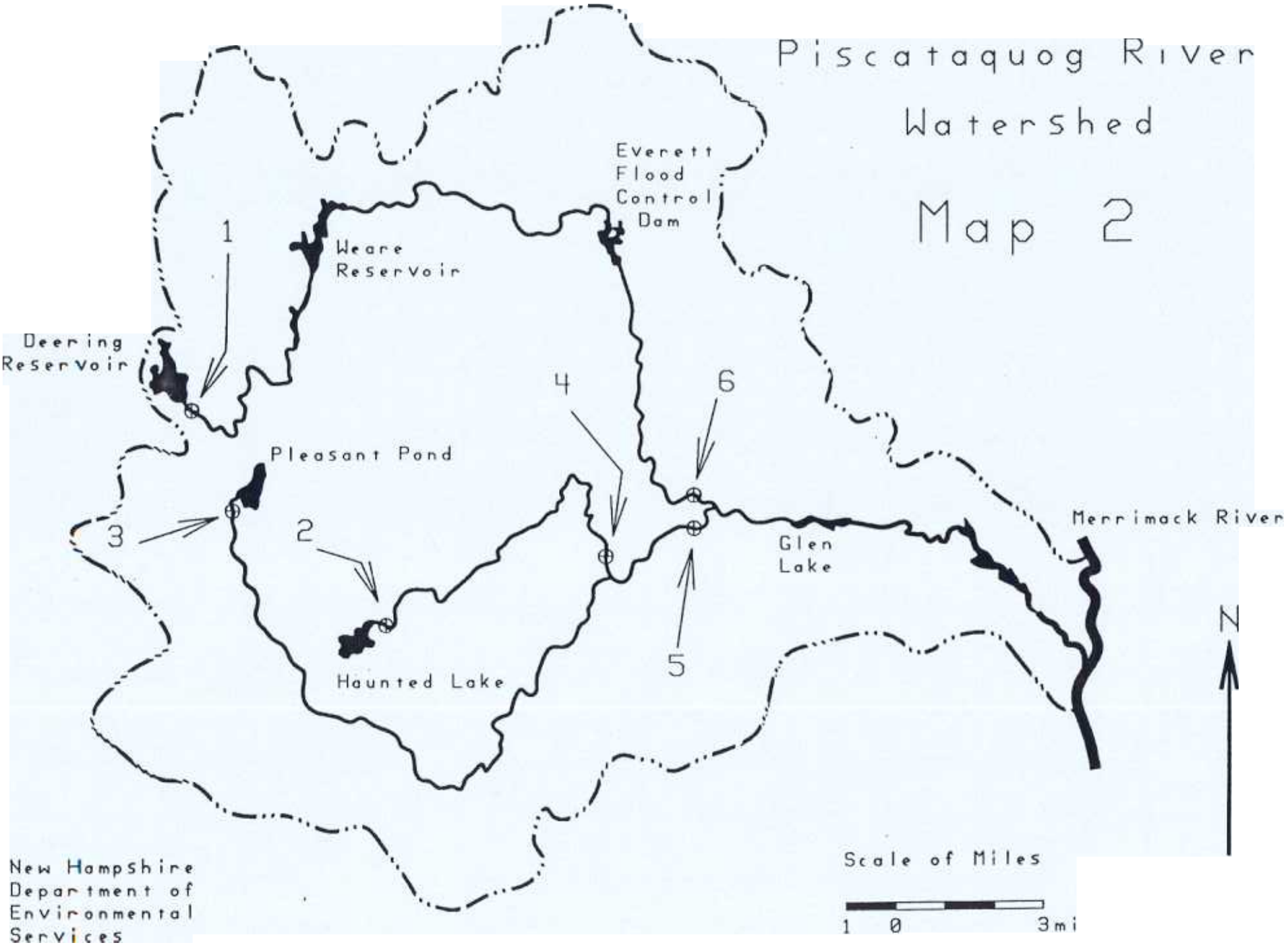


ap 1

stations (Map 2), were then sampled on July 25 and 26 for macroinvertebrate diversity as an indicator of river quality. Following the IWLA's methodology for collection, identification and interpretation of macroinvertebrate communities, the volunteers from the PWA and state biologists generated river quality ratings for each station.

In addition to the macroinvertebrate survey, periphyton/chlorophyll-a sample devices were installed at each station. These samplers are designed as a floating substrate to collect communities of periphyton, (microorganisms that grow on or become attached to submerged surfaces). Also, algal chlorophyll-a found in algae can be analyzed from the samplers that are used in conjunction with the periphyton communities as an indicator of organic pollution and stream productivity. The samplers were the responsibility of DES summer interns as part of an independent study for the University of Massachusetts. Productivity and water quality were determined from this methodology by calculating an Autotrophic Index. This requires a great deal of time in a laboratory as well as expensive analytical equipment making this phase of the program an impractical method of future assessment for the volunteer monitor.

The specific information on sampling techniques for macroinvertebrates can be found in the Piscataquog River Volunteer Monitoring Program booklet. A description and results from the chemical and biological monitoring from the Piscataquog River Watershed from July 1991 is presented in the next section.



Biology Bureau

Chemical Analysis

Volunteers collected water samples from the six stations within the Piscataquog River Watershed. Volunteers followed EPA/Standard Methods field sample collection techniques. An outline of the procedures was presented to the PWA prior to the sample collection date as well as a description of the parameters to be monitored. These parameters includ- pH, ANC, Color, Total Phosphorus, Specific Conductance, Chlorophyll-a, Fecal Coliform and Turbidity. All analytical tests were conducted by state biologists in the Limnology Center. The Limnology Center is inspected by the EPA and utilizes EPA quality assurance and quality control programs

pH-

The measurement of pH is essential to determine living conditions within the aquatic community. As pH decreases, the environment becomes more acidic and stresses aquatic life. New Hampshire waterways generally have pH values ranging from 6.5 - 8.5 with a pH of seven being neutral. As the pH decreases to below 6, many fish and other aquatic organisms may become stressed, and some species disappear. Little or no fish life remains when the pH falls much below 5

As figure 1 indicates, results from the six stations in the Piscataquog watershed were in accordance with the state mean and indicated no stress upon the aquatic community. During spring runoff however, conditions could become more acidic, which might dictate a shift in the diversity of the aquatic community. Sampling frequently throughout the

Piscataquog River Watershed
pH Results

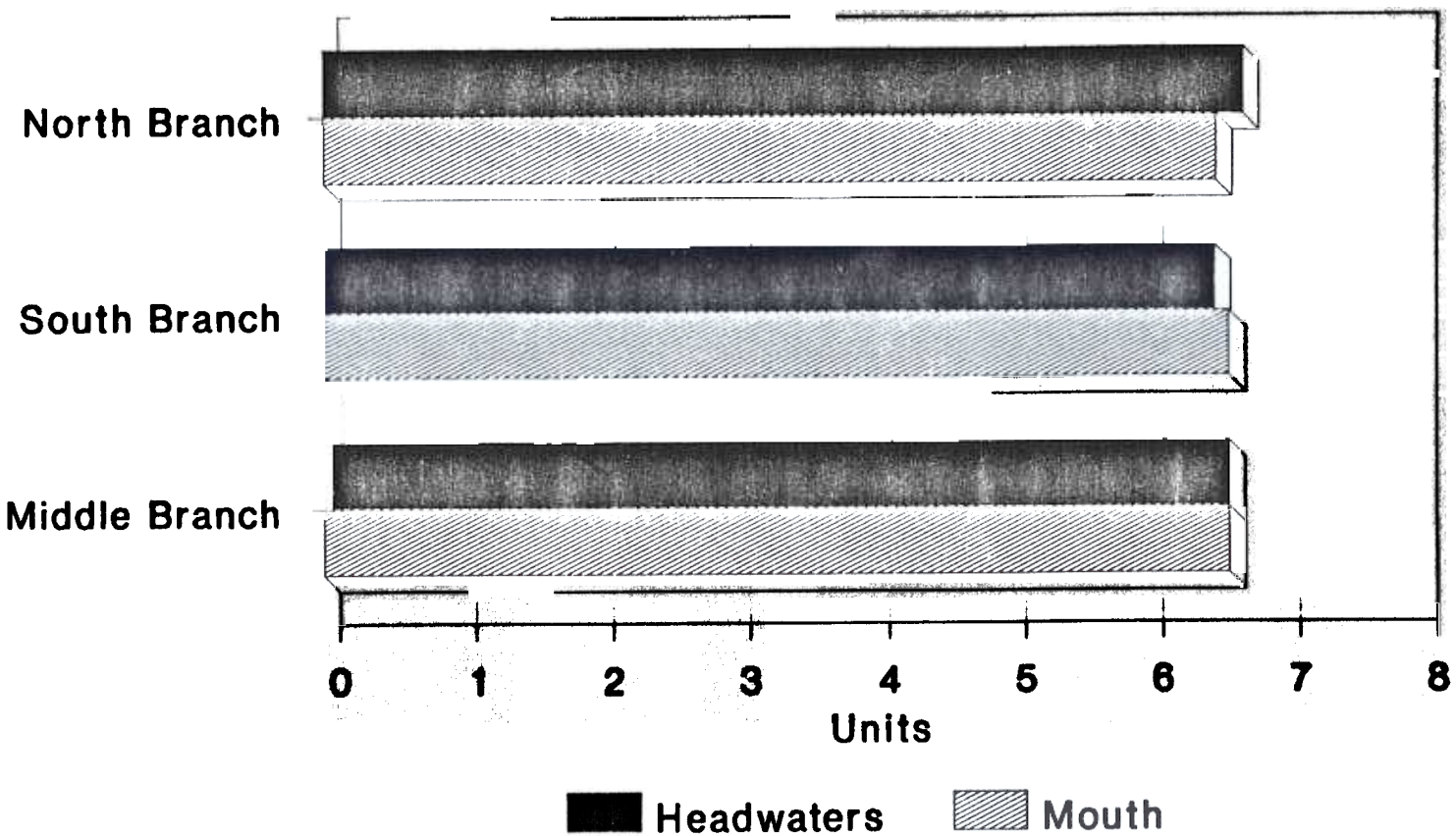


Figure 1: pH results (stns.1-6)

y t d H th

d y h y

Table 1:

Category	pH (units)	Category	pH(units)
A		ed	
C		ry	

ANC-

Th k y y (AN)

p d y

np h g gy N h h

k g AN Tl th AN th

h d (gu Th ANC th

h d y t pr

pe d d d h h y h

bu g pa y h y th

y h h pH h

g h y y

Total Phosphorus

Th ph ph (TP)

h hme Ph ph o

Piscataquog River Watershed
Acid Neutralizing Capacity

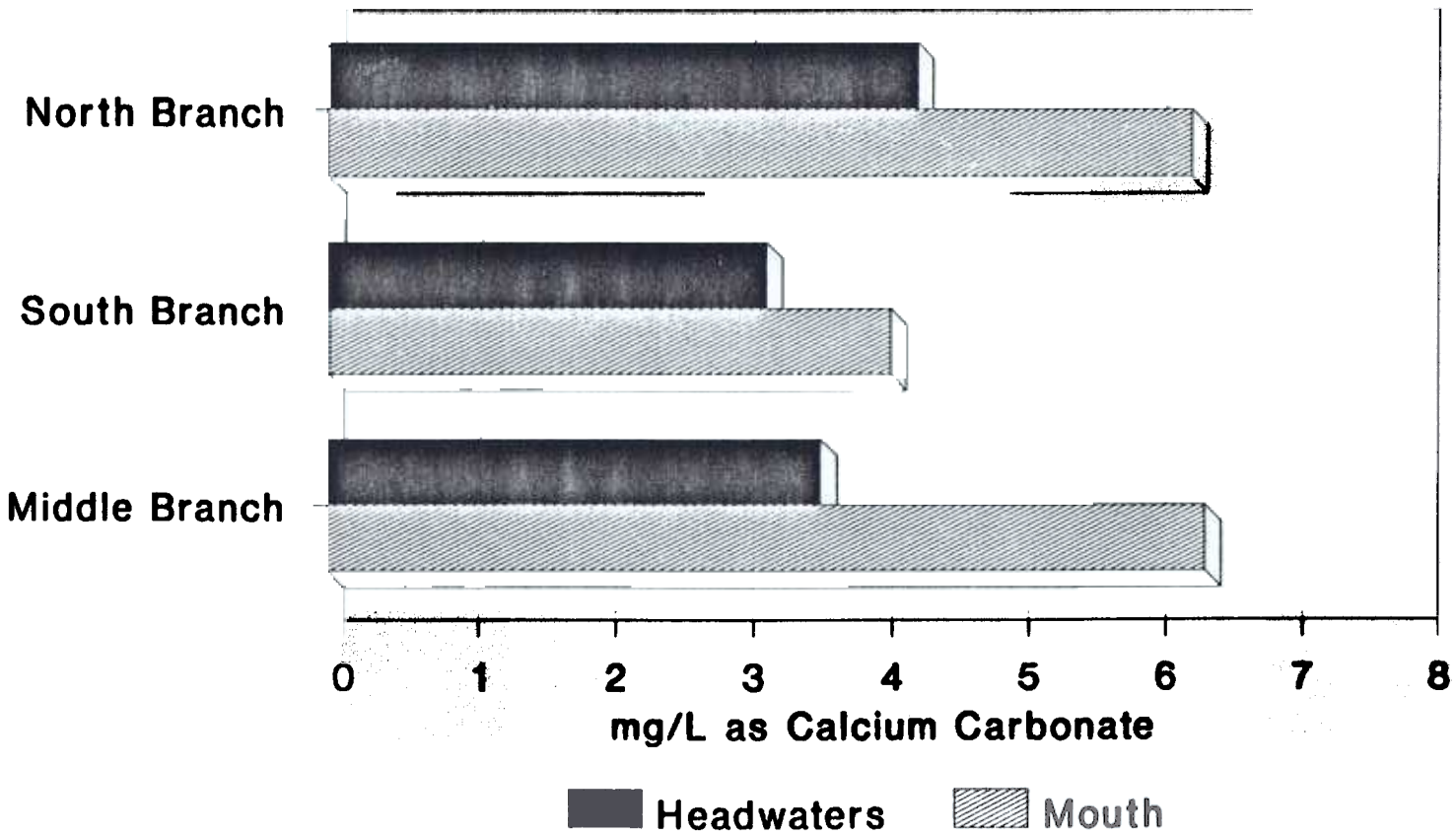


Figure 2: ANC results (stns. 1-6)

g: dw y. d

am bank Ph ph ed y h t d

d g t nd d

h d h ph be h. gh wh

th m t ip ph h nd hed

nd epo t th

h hr h dw xhib ed t: y l TP

h k pa y tr nk gu Th

h d th b h ha T:

d h h y:

p ded d Th

h d d y

d g ups

Table 2

Category	TP (mg/L)	Category	TP (mg/L)
Low (g od)		H h	
g			

Apparent Color

h g pa h: h h. h. y

d nd h pH h y prod ed by

d ed g d by od d y.

Piscataquog River Watershed
Total Phosphorus Results

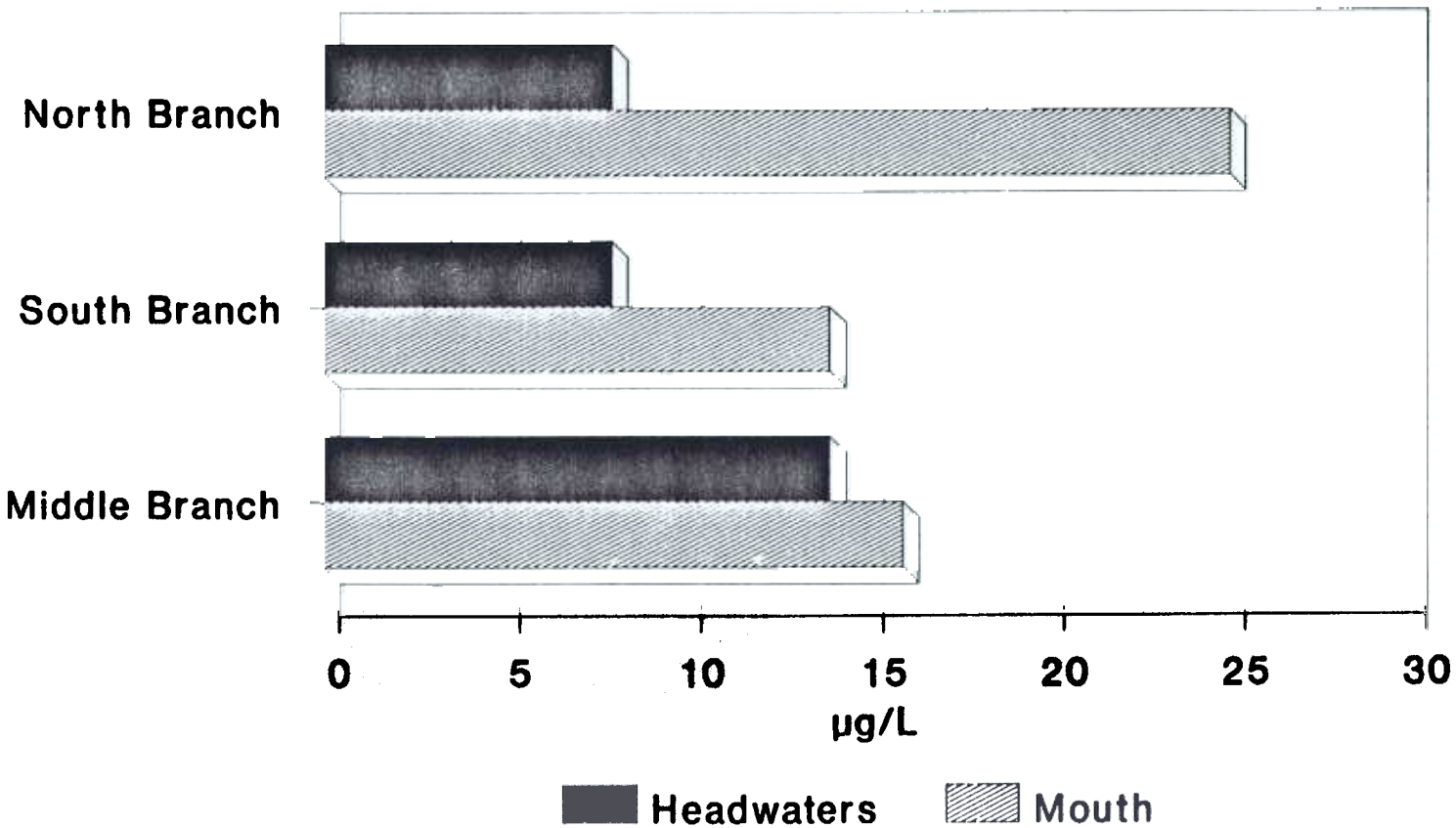


FIGURE 3: total phosphorus (stns. 1-6)

material such as tannins and lignans.

The three headwater stations displayed a range of color from 13 to 45 and is probably an indication of lake water entering the stream. The three stations at the mouths of the streams all produced an increase in color reflecting the suspended load of sediments (figure 4). Also, as the stream meanders away from its headwaters it is subjected to a high degree of organic input from leaves, soil, runoff etc.. This detritus leads to increased organic decay and increased suspended load and a higher color range.

Table 3:

Color Range(NTU's)	Visual Impression
0 - 20	Crystal clear
20 - 35	Slightly tea-colored
35 - 100	Tea colored to highly colored

Specific Conductance-

Conductivity is a measure of the ability of an electrical current to pass through water. This provides an indication of the amount of dissolved salts and metals in a water body. Since several sources of pollution, such as road salts, septic leachate and detergents, cause an elevation in conductivity, it is a useful measurement, particularly in a

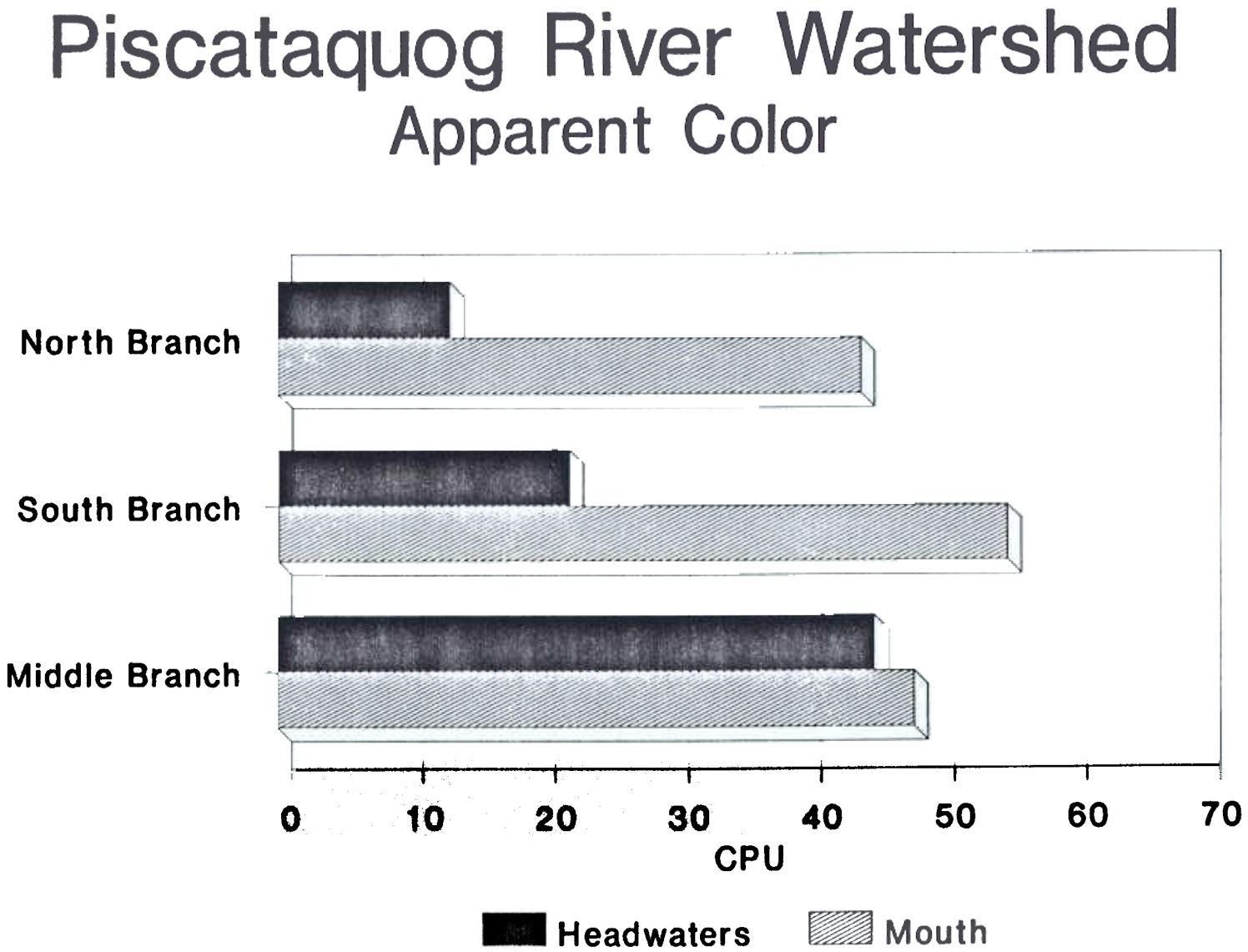


Figure 4: apparent color (stns. 1-6)

stream, to screen for such impacts

Figure 5 illustrates that the conductivity measurements from the six stations sampled exhibit values expected from a dynamic, high velocity stream, such as the three branches sampled in this study. However, if conductivity increased dramatically in a given station, bracketing the upstream station could yield a source of pollution.

Table 4:

Common conductivities of N.H.	
rain/snow	3.0 - 20.0
clean rivers	30 - 50
most rivers	60 - 90
larger rivers	100 - 200

Chlorophyll-a

Chlorophyll-a is the photosynthetic green pigment contained in algae and all green plants. Stream productivity can be quantified by measuring the chlorophyll-a concentration. The south and middle branches exhibited little variation in chlorophyll-a concentration from headwater to mouth. The north branch headwaters also exhibited this trend. However, the mouth of the north branch had a large chlorophyll-a concentration (figure 6). This increased concentration in the mouth of the north branch parallels the total phosphorus results from figure 3. Based upon results from this station, an initial determination can be constructed indicating an autotrophic stream environment with an abundance

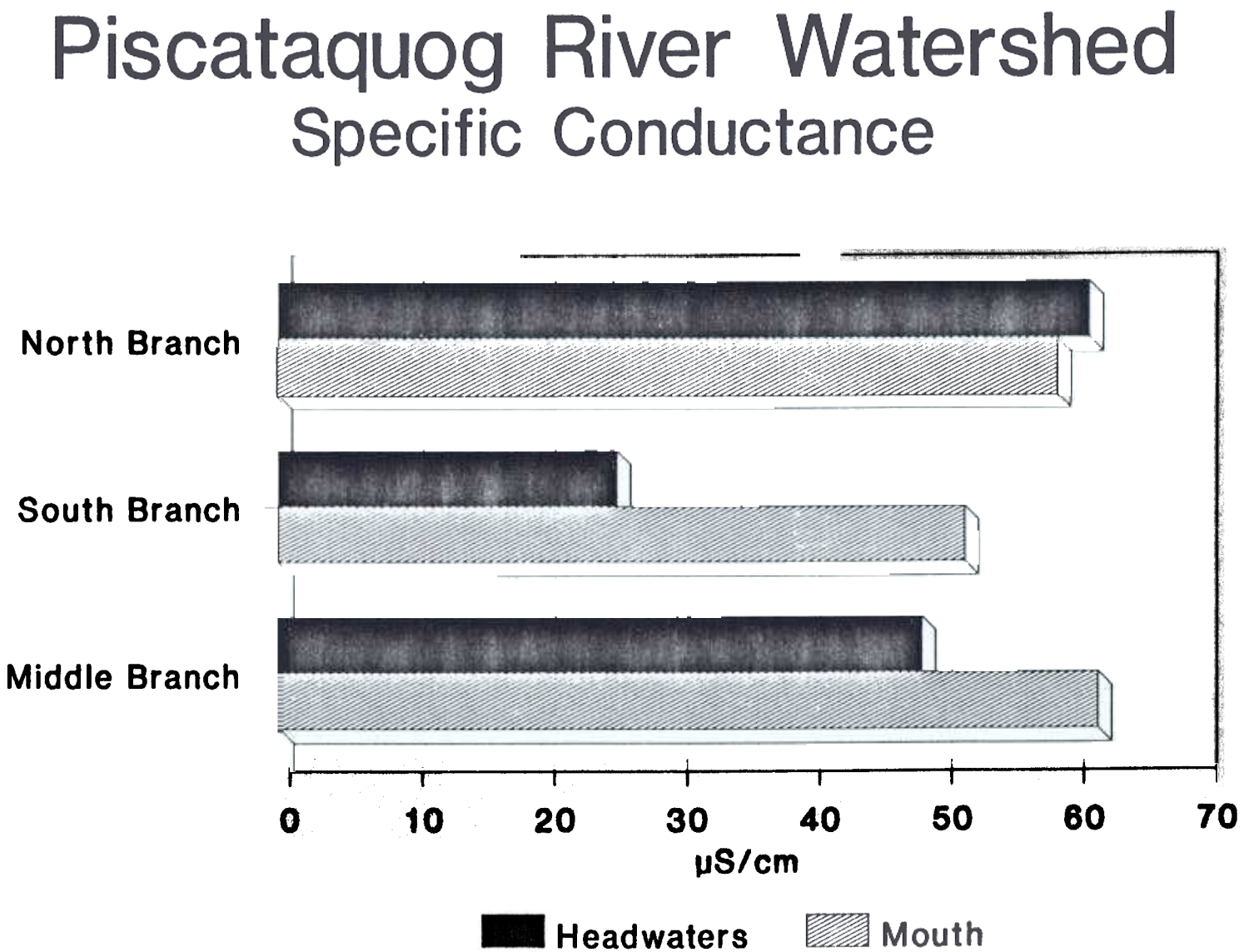


Figure 5: Specific Conductance (stn.1-6)

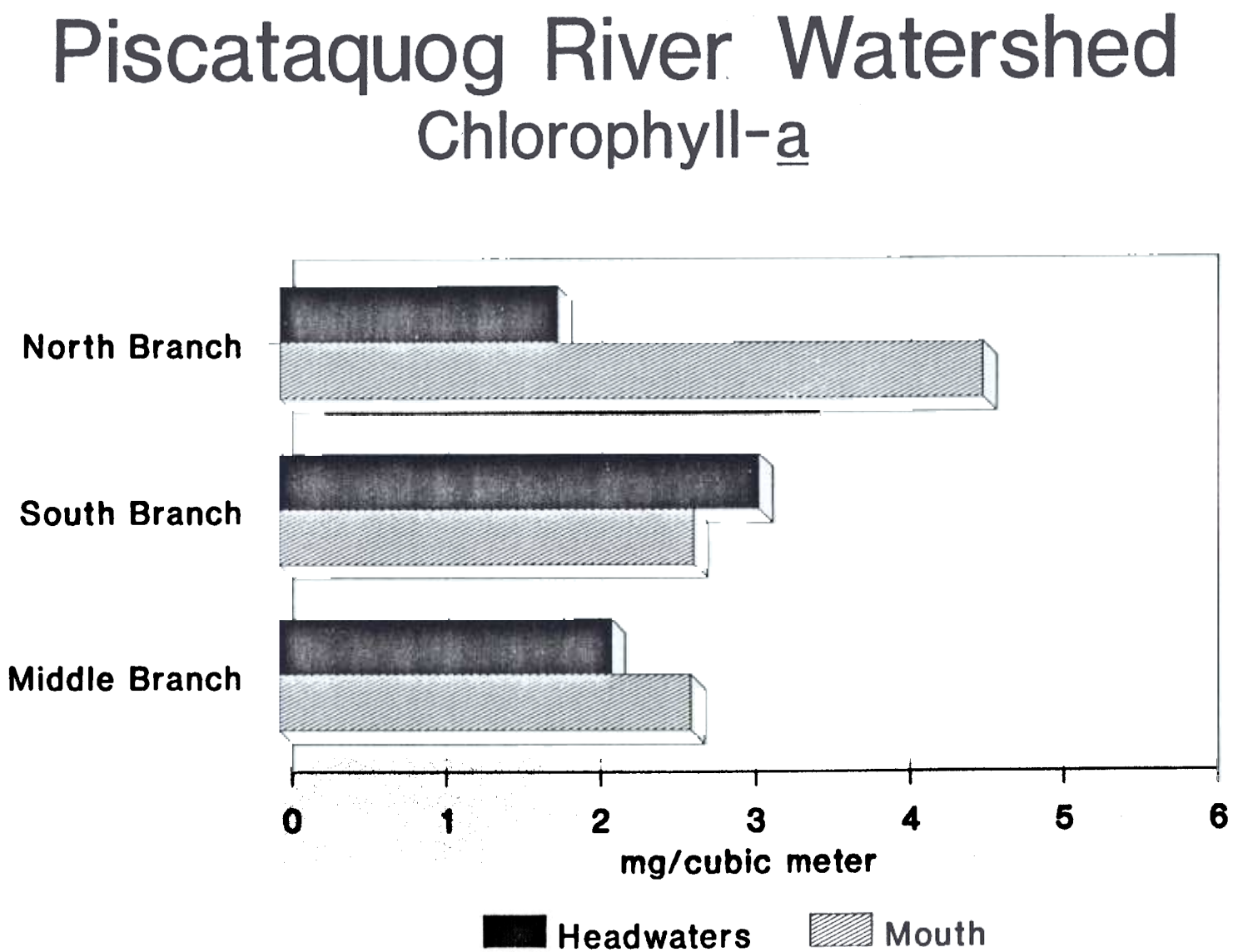


Figure 6: Chlorophyll-a (stns. 1-6)

t. i h ph ph ppo di xi

wh nd pport h h. qu ommu

y w. th yp

t phy trophy ams us ly

h dw ph yn

h omm g and dynami tr ha

ph syn h y asona ons in. i

h h hy ophy h ame eam gme

th: gh h y Th. h' ni ed h ph omp t

ons an

y h. h ed y d h ophy amp

phy h hy ab h ed y

t y h. th omm p wh. h nd

po po

Table 5

Category	Chl-a (mg/cubic meter)
h.	
amoun	

Fecal Coliform

Th p w be i. d i

tami th pathog

d y th onme t th p

umb d rby tam th ge

numbers found in the mouth of the north branch,(figure 7) probably indicated an isolated source of contamination since results from the following month were within acceptable limits and meet fishable/swimmable criteria. It should be noted however, that as of August 30, new standards took effect for Escherichia coli and the new bacteria standards for the state will be based upon a mean of at least three samples obtained over a sixty day period or 406 in any one sample.

Although the results at station six appear to be an isolated incident, it is recommended that further samples be collected and compared to the new state standards.

Turbidity-

Turbidity is a test applied to waters containing suspended matter that interferes with the passage of light through the water. Turbidity can be caused by a wide variety of materials, such as agricultural runoff, land clearing activities and subsequent soil erosion and other operations that disturb the soil. Class A waters in New Hampshire not to exceed 5 standard turbidity units. Four out of 6 stations sampled were below 1.0 NTU's and no station exceeded 1.6 NTU's (figure 8).

Results at the mouths of the branches were higher than the headwaters which is typical trend, most likely due to bank erosion and siltation and the fact that lakes probably settle out much of the turbidity at the headwaters.

Piscataquog River Watershed
Fecal Coliforms

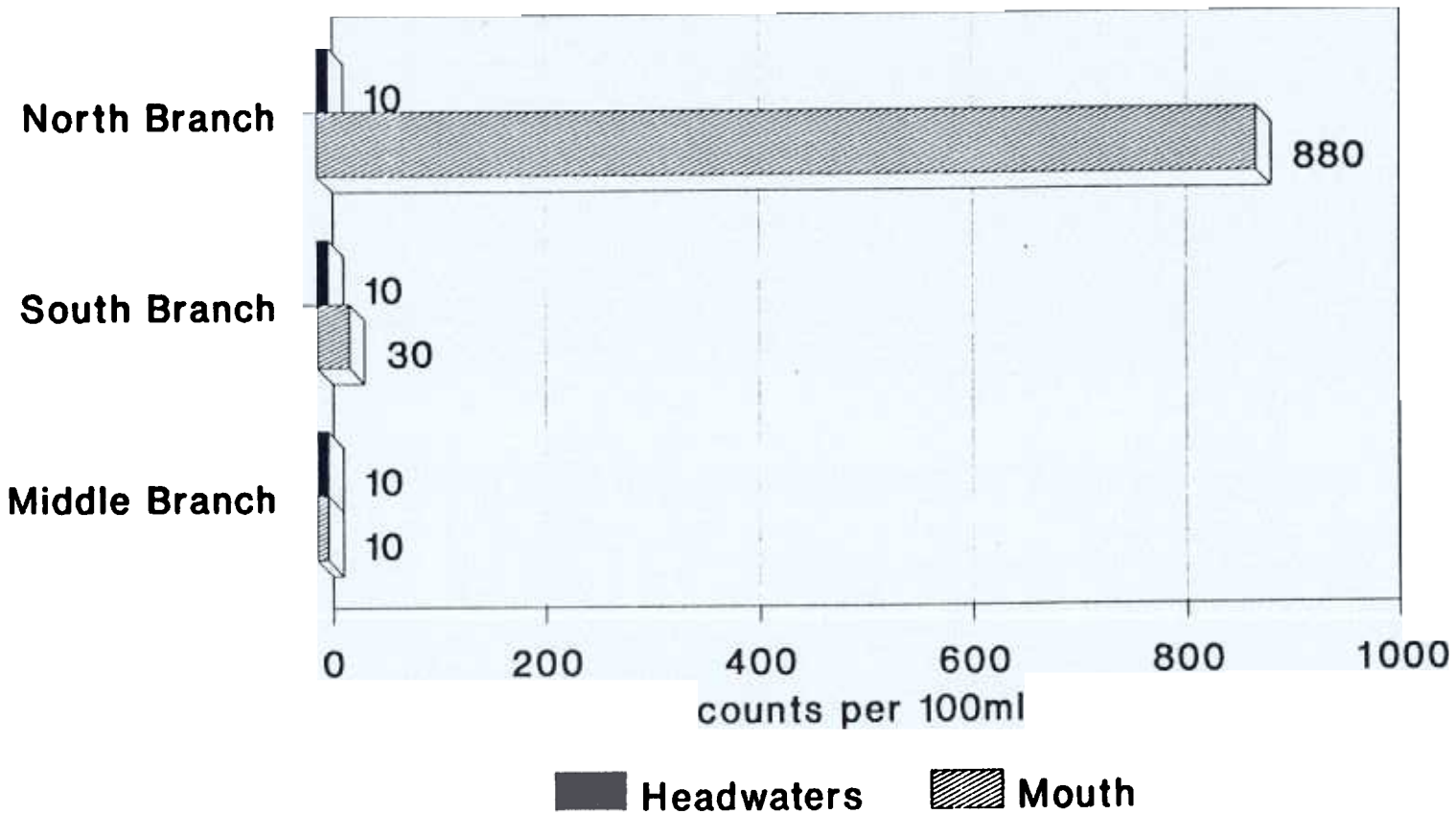


Figure 7: fecal coliforms (stns. 1-6)

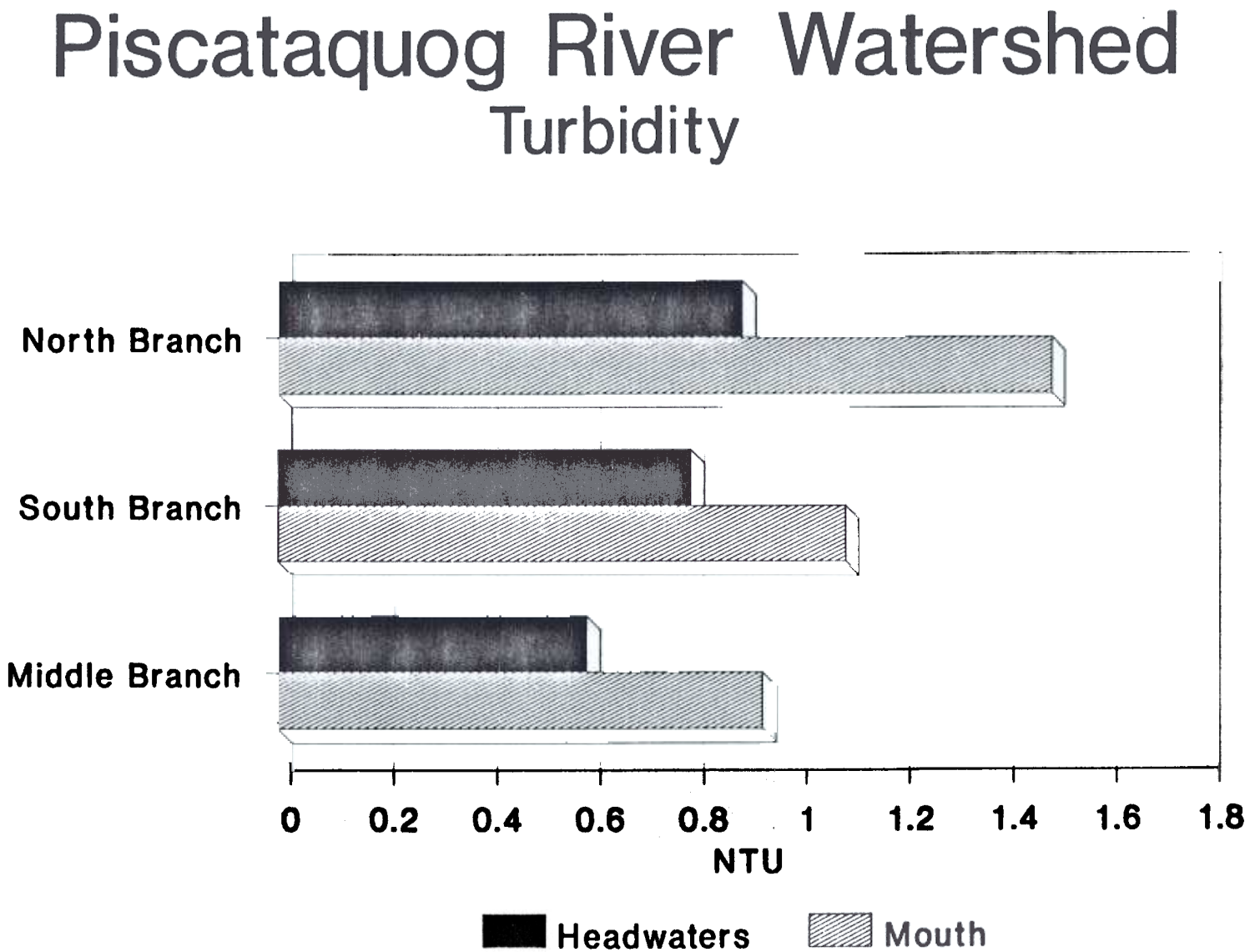


Figure 8: Turbidity results (stns. 1-6)

Dissolved Oxygen-

Dissolved oxygen levels in the aquatic environment dictate the quality and diversity of life found in a water body. As dissolved oxygen levels decrease, species diversity will also decrease. Figure 9 illustrates that the six stations sampled displayed dissolved oxygen concentrations between 9 and 11 mg/L which are typical of a dynamic stream environment saturated with oxygen.

Temperature-

Temperature within the aquatic habitat dictate the abundance and diversity of species found in a particular fluvial system. Any drastic changes in temperature besides seasonal changes, can have severe detrimental effects upon aquatic life. The six sample stations had typical late summer temperatures with little variations from head to mouth which ensure a stable aquatic community for this sample point (figure 10)

Biological Analysis

The biological monitoring phase of this program included macroinvertebrate collection as an indicator of water quality based upon species diversity (figure 11). The macroinvertebrate collection and tabulation was conducted under the guidelines of the IWLA's procedure, and both a kick seine net and D-frame net were employed in the collection to ensure representative sampling from the stream environment.

Piscataquog River Watershed
Dissolved Oxygen

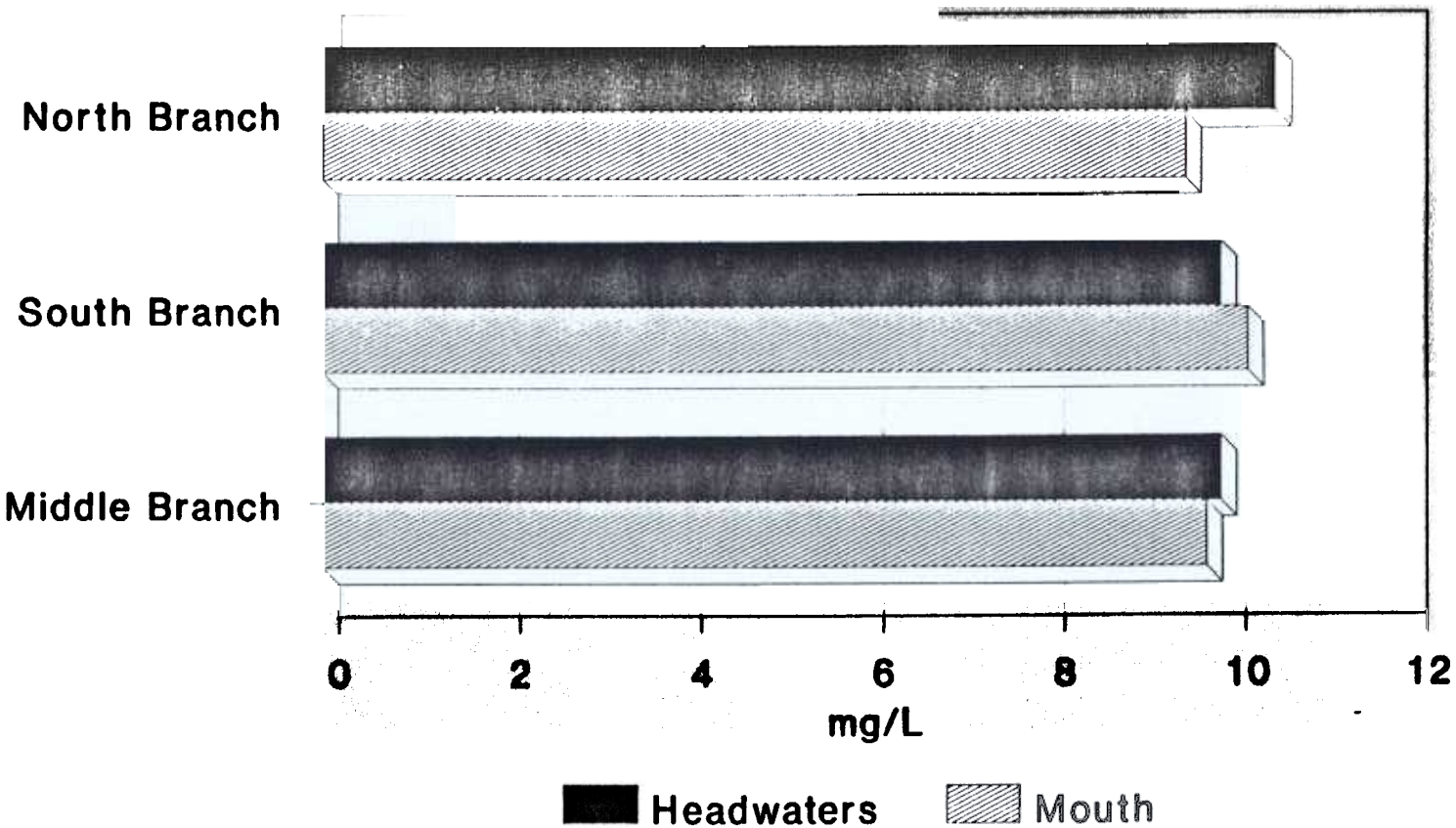


FIGURE 9: dissolved oxygen (stns. 1-6)

Piscataquog River Watershed
Temperature

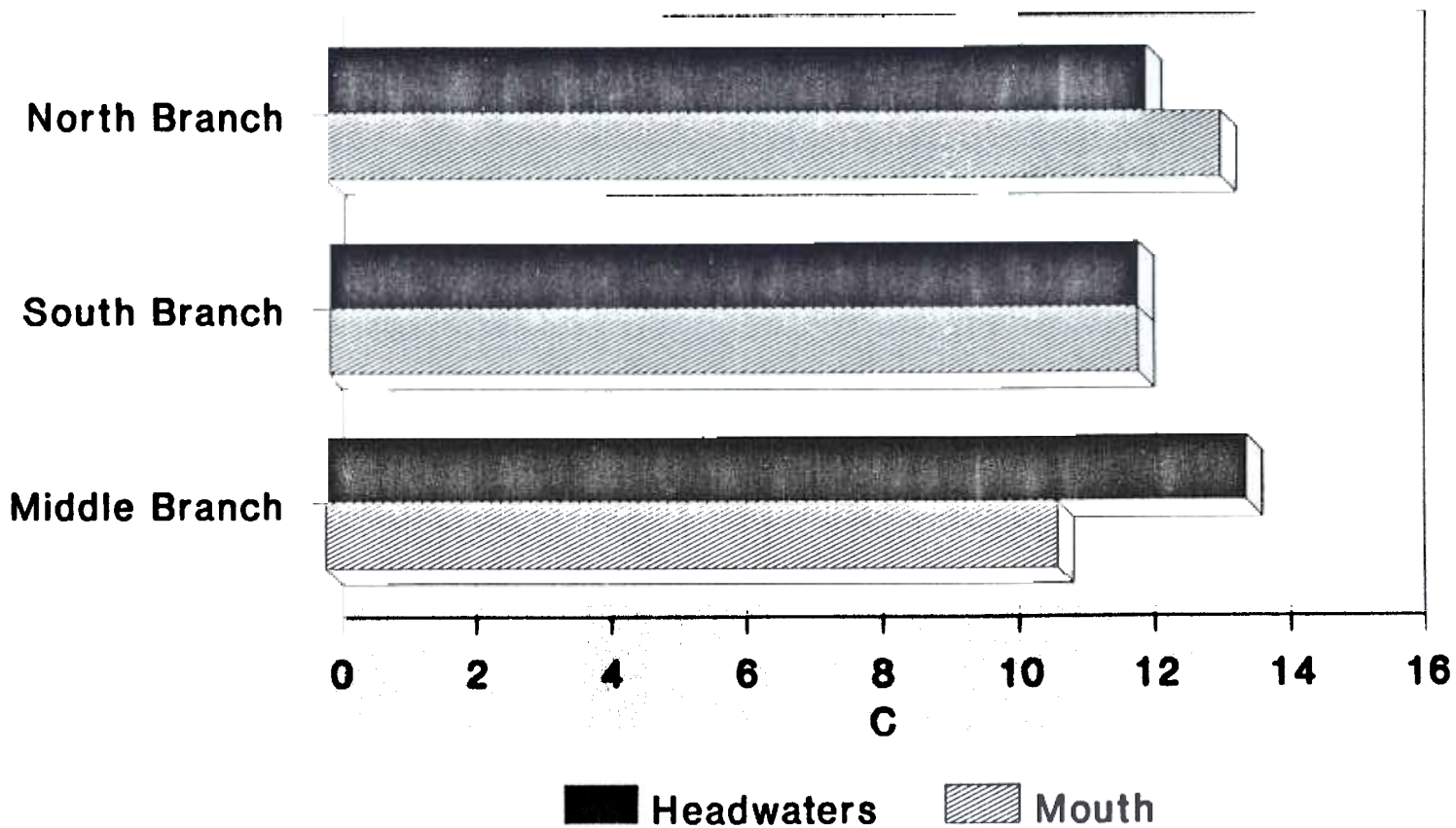


Figure 10: temperature data (stns. 1-6)

Piscataquog River Watershed
Species Diversity

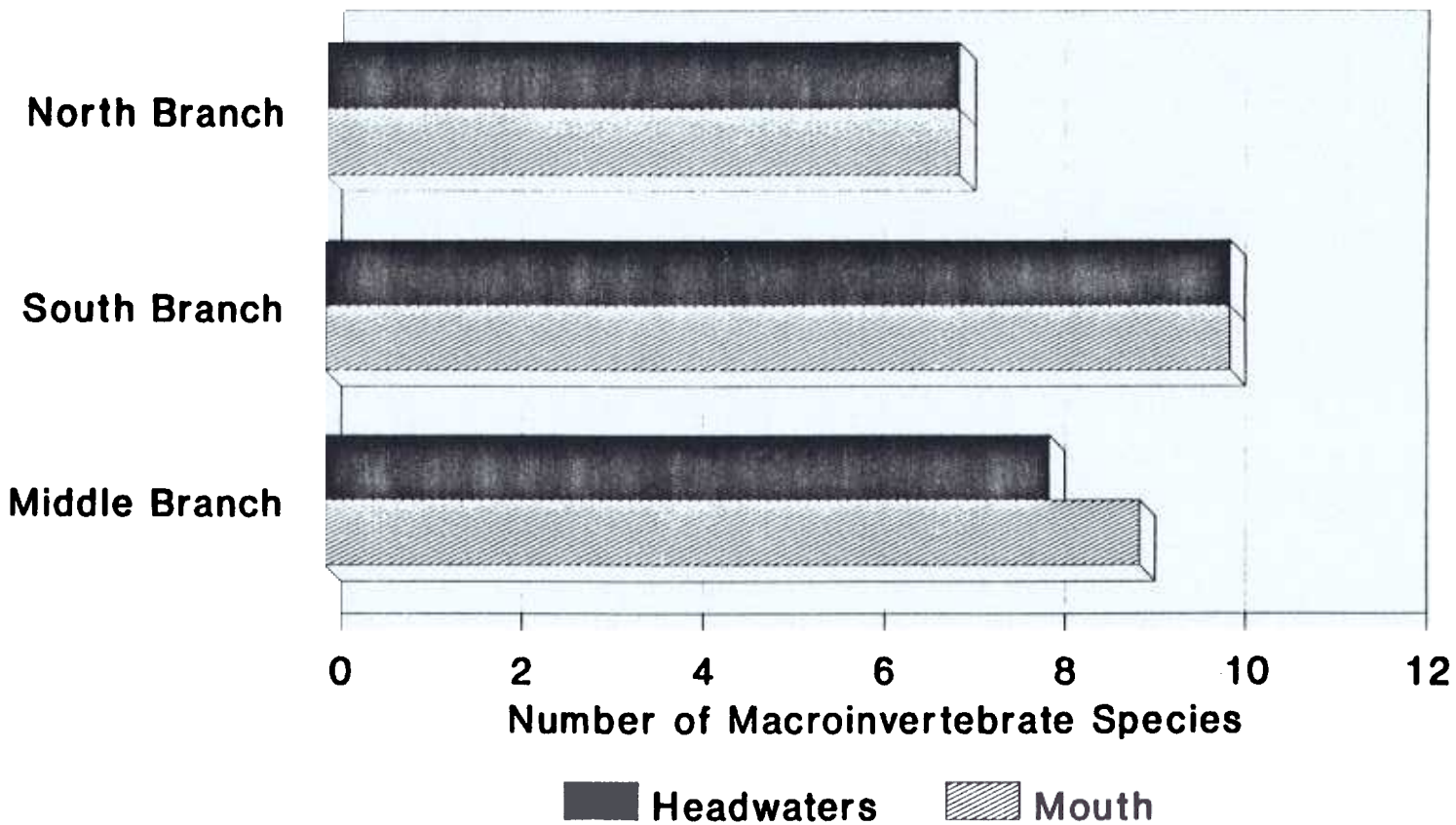


Figure 11: Species diversity (stns. 1-6)

Two to three collections were conducted at each station to ensure validity. Species were separated and identified and counted at each station. Correctly completing the macroinvertebrate survey sheet yielded an indication of river quality directly on site. Based upon number of species found and their diversity, a water quality rating was generated for each station.(appendix 1) The diversity index ranges from poor, fair, and good to excellent. The majority of the stations sampled had good to excellent river water quality ratings revealing a good diversity of species in a healthy environment. Station six, at the mouth of the North branch, exhibited fair river quality. However, the volunteers were only able to conduct D-frame collections since the sample site exhibited a slow moving channel with no riffles. Riffles tend to be the choice habitat of macroinvertebrates.

It should be noted that in each of the six stations a number of pollution sensitive organisms were found with some of the highest diversity among this group. This is a strong indicator of excellent river water quality and a stable aquatic ecosystem in the stations sampled for this time of year.

A discharge of degradable non-toxic organic wastes into surface water usually results in a greater biomass of non-chlorophyllous, heterotrophic organisms than of algae which is reflected in a rise in total biomass chlorophyll-a ratio. This ratio has been termed the autotrophic index (AI).

$$\text{Autotrophic Index (AI)} = \frac{\text{Biomass (dry wgt. organic matter)}}{\text{(Chlorophyll-a in mg/sq. meter)}}$$

The periphyton/chlorophyll-a collection conducted at the six stations was employed to generate an autotrophic index rating of water quality which acts to supplement the macroinvertebrate and chemical analysis results.

Since lakes are generally more productive than stream environments, lake AI values are greater. High productivity would produce a higher AI value and could explain the high values in the headwater stations located below lakes. High AI values also suggest a community containing a large number of heterotrophic, non-chlorophyllous organisms.

As figure 12 illustrates, the studies at the mouths of the three branches had considerably lower AI values. Generally AI values of or below 400 are considered free from organic pollution. However, since the headwaters are in close proximity to lakes, this figure must be manipulated to account for the naturally occuring high AI values associated with lakes. It should be noted that the sample device from station one was missing after the two week colonization period and therefore, no comparison can be made on the North branch for AI values. Only after repeated seasonal sampling can the AI establish trends in river quality allowing for identification of possible sources of organic pollution Also, the time required as well as the equipment needed to calculate AI values, make this parameter impractical for the lay person The use of this technique will be limited to state agencies or volunteer programs with access to the appropriate facilities.

Piscataquog River Watershed
Autotrophic Index

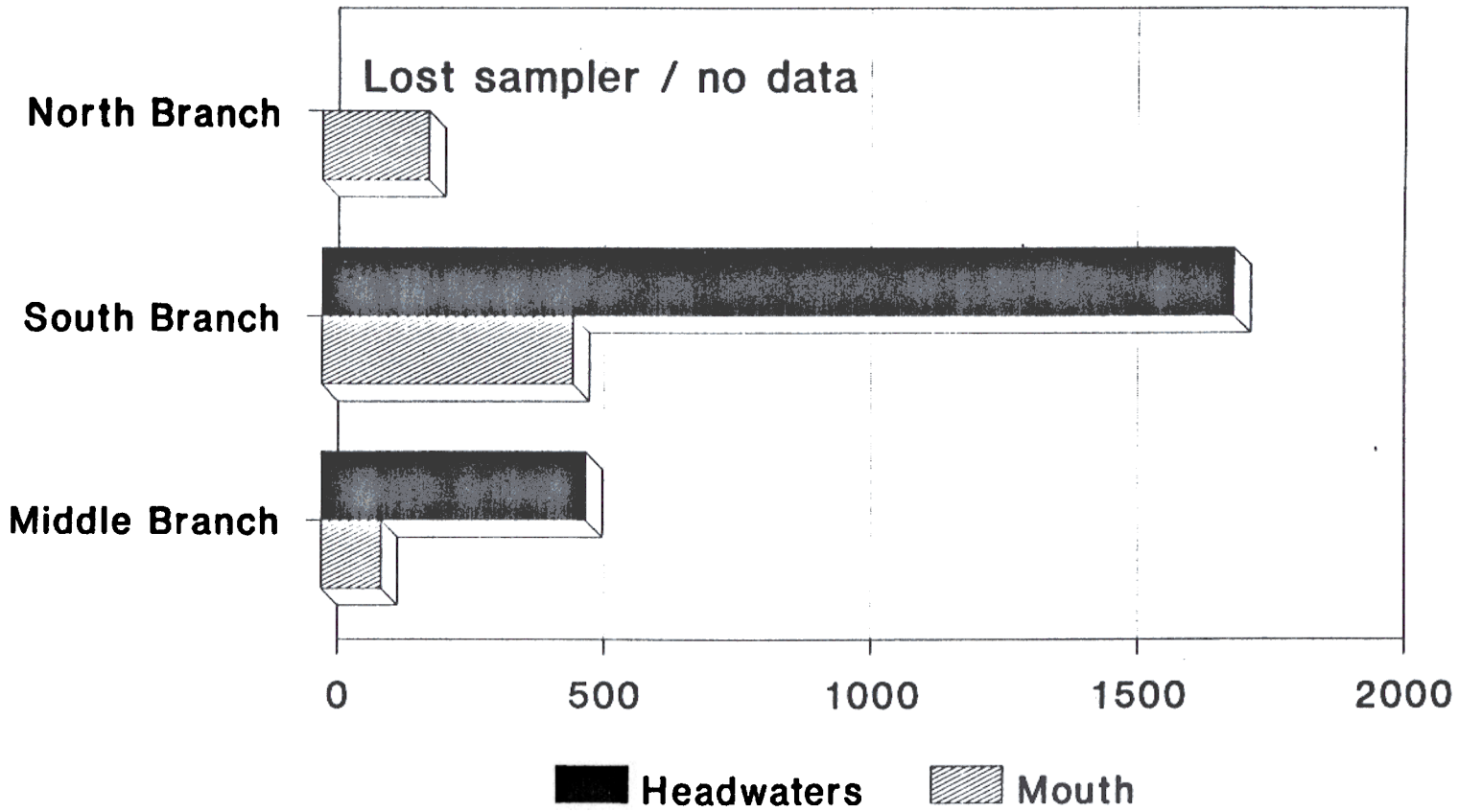


Figure 12: AI = biomass / chlorophyll-a

Conclusion

The overall outcome of this program is excellent. Biological and chemical results were highly favorable and indicate a healthy aquatic environment. Graph 12 illustrates that macroinvertebrate diversities at six sampling stations rated good to excellent with the largest populations being found among the pollution sensitive organisms (stone-mayfly, caddisfly etc...). This is a strong indicator of favorable water quality. However, with the headwater and mouth stations separated by a considerable distance, it is conceivable that along a stream segment there could be a zone of degradation followed by a zone of recovery before the downstream station. Therefore, although the diversity and abundance of macroinvertebrates was highly favorable, it is by no means representative of the entire stream segment. This rational must also be applied to the chemical data collected. Only through continued year-round sampling, established multiple sample stations, and measuring seasonal changes and storm events can a thorough river quality assessment be made.

Recommendations

Implement a sampling program that would collect samples every season and at two other times to include storm events or spring runoff This would establish long term river quality trends as well as display seasonal variations in the aquatic habitat. In addition to increased in sampling, the PWA should conduct a land use identification survey.

land use survey should identify activities within the watershed which may cause potential negative impacts to the aquatic community in the Piscataquog River watershed. Once this is accomplished, a new sampling program can be developed to monitor potential adverse effects of land use activities in a specific region

PWA should also respond to potential point and non-point sources of pollution by contacting the appropriate state agency or by identifying the source and implementing this program in the suspected region to generate results which display a negative impact to the aquatic community.

underlying goal of this program is to give the PWA a tool for assessing river quality within the watershed and to establish long term water quality data so that trends can be monitored. DES looks forward to future cooperation with the PWA in monitoring and maintaining the current water quality of the Piscataquog River watershed.

APPENDIX 1

ST TION 1:

HEADWATERS OF NORTH BRANCH

MACROINVERTEBRATE COUNT

Use the stream monitoring instructions to conduct a macroinvertebrate count. Use letter codes (A = 1 - 9, B = 10 - 99, C = 100 or more) to record the numbers of organisms found in a 3 foot by 3 foot area. Then add up the number of letters in each column and multiply by the indicated index value. The following columns are divided based on the organism's sensitivity to pollution.

SENSITIVE		SOMEWHAT-SENSITIVE		TOLERANT	
B	caddisfly larvae		beetle larvae		aquatic worms
	hellgrammite		clams		blackfly larvae
A	mayfly nymphs		crane fly larvae		leeches
	gilled snails	B	crayfish		midge larvae
	riffle beetle adult		damselfly nymphs		pouch (and other) snails
A	stonefly nymphs		dragonfly nymphs		
	water penny larvae	A	scuds		
			sowbugs		
			fishfly larvae		
			alderfly larvae		
			atherix		
3 × 3 = 9	# of letters times 3 = index value +	2 × 2 = 4	# of letters times 2 = index value +	0 × 1 = 0	# of letters times 1 = index value

Now add together the three index values = 13 total index value.

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [ ] Excellent (> 22)
- [ ] Good (17 - 22)
- [x] Fair (11 - 16)
- [ ] Poor (< 11)

SENSITIVE		SOMEWHAT-SENSITIVE		TOLERANT	
B	caddisfly larvae		beetle larvae		aquatic worms
	hellgrammite	A	clams		blackfly larvae
A	mayfly nymphs		crane fly larvae		leeches
	gilled snails	B	crayfish		midge larvae
	riffle beetle adult		damselfly nymphs		pouch (and other) snails
A	stonefly nymphs		dragonfly nymphs		
	water penny larvae	A	scuds		
			sowbugs		
		A	fishfly larvae		
			alderfly larvae		
			atherix		
3 × 3 = 9	# of letters times 3 = index value +	4 × 2 = 8	# of letters times 2 = index value +	0 × 1 = 0	# of letters times 1 = index value

Now add together the three index values = 17 total index value.

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [ ] Excellent (> 22)
- [x] Good (17 - 22)
- [ ] Fair (11 - 16)
- [ ] Poor (< 11)

STATION 2:

HEADWATERS OF MIDDLE BRANCH

MACROINVERTEBRATE COUNT

Use the stream monitoring instructions to conduct a macroinvertebrate count. Use letter codes (A = 1 - 9, B = 10 - 99, C = 100 or more) to record the numbers of organisms found in a 3 foot by 3 foot area. Then add up the number of letters in each column and multiply by the indicated index value. The following columns are divided based on the organism's sensitivity to pollution.

SENSITIVE		SOMEWHAT-SENSITIVE		TOLERANT	
C	caddisfly larvae	A	beetle larvae		aquatic worms
	hellgrammite	C	clams		blackfly larvae
B	mayfly nymphs		crane fly larvae	A	leeches
	gilled snails	A	crayfish		midge larvae
	riffle beetle adult	A	damselfly nymphs		pouch (and other) snails
A	stonefly nymphs	A	dragonfly nymphs		
	water penny larvae		scuds		
			sowbugs		
			fishfly larvae		
			alderfly larvae		
			atherix		
3 × 3 = 9	# of letters times 3 = index value +	5 × 2 = 10	# of letters times 2 = index value +	1 × 1 = 1	# of letters times 1 = index value

Now add together the three index values = 20 total index value.

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [ ] Excellent (> 22)
- [x] Good (17 - 22)
- [ ] Fair (11 - 16)
- [ ] Poor (< 11)

SENSITIVE		SOMEWHAT-SENSITIVE		TOLERANT	
A	caddisfly larvae		beetle larvae	A	aquatic worms
	hellgrammite		clams		blackfly larvae
	mayfly nymphs		crane fly larvae		leeches
	gilled snails	A	crayfish		midge larvae
	riffle beetle adult	A	damselfly nymphs		pouch (and other) snails
	stonefly nymphs	A	dragonfly nymphs		
	water penny larvae		scuds		
			sowbugs		
			fishfly larvae		
			alderfly larvae		
			atherix		
1 × 3 = 3	# of letters times 3 = index value +	3 × 2 = 6	# of letters times 2 = index value +	1 × 1 = 1	# of letters times 1 = index value

Now add together the three index values = 10 total index value.

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [ ] Excellent (> 22)
- [ ] Good (17 - 22)
- [ ] Fair (11 - 16)
- [x] Poor (< 11)

(D-FRAME)

S ATION 3:

HEADWATERS OF SOUTH BRANCH

MACROINVERTEBRATE COUNT

Use the stream monitoring instructions to conduct a macroinvertebrate count. Use letter codes (A = 1 - 9, B = 10 - 99, C = 100 or more) to record the numbers of organisms found in a 3 foot by 3 foot area. Then add up the number of letters in each column and multiply by the indicated index value. The following columns are divided based on the organism's sensitivity to pollution.

SENSITIVE		SOMEWHAT-SENSITIVE		TOLERANT	
A	caddisfly larvae		beetle larvae		aquatic worms
	hellgrammite	C	clams	A	blackfly larvae
A	mayfly nymphs		crane fly larvae		leeches
	gilled snails		crayfish		midge larvae
	riffle beetle adult		damselfly nymphs		pouch (and other) snails
B	stonefly nymphs		dragonfly nymphs		
A	water penny larvae		scuds		
			sowbugs		
		C	fishfly larvae		
			alderfly larvae		
			atherix		
4 # of letters times 3 = 12 index value		2 # of letters times 2 = 4 index value		1 # of letters times 1 = 1 index value	

Now add together the three index values = 17 total index value

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [ ] Excellent (> 22)
- [✓] Good (17 - 22)
- [ ] Fair (11 - 16)
- [ ] Poor (< 11)

SENSITIVE		SOMEWHAT-SENSITIVE		TOLERANT	
A	caddisfly larvae		beetle larvae		aquatic worms
	hellgrammite	C	clams		blackfly larvae
A	mayfly nymphs		crane fly larvae		leeches
	gilled snails		crayfish		midge larvae
	riffle beetle adult		damselfly nymphs		pouch (and other) snails
A	stonefly nymphs		dragonfly nymphs		
A	water penny larvae		scuds		
			sowbugs		
		A	fishfly larvae		
		B	alderfly larvae		
			atherix		
4 # of letters times 3 = 12 index value		3 # of letters times 2 = 6 index value		0 # of letters times 1 = 0 index value	

Now add together the three index values = 18 total index value

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [ ] Excellent (> 22)
- [✓] Good (17 - 22)
- [ ] Fair (11 - 16)
- [ ] Poor (< 11)

STATION 4:

MIDDLE BRANCH OUTLET (BRIDGE SITE)

MACROINVERTEBRATE COUNT

Use the stream monitoring instructions to conduct a macroinvertebrate count. Use letter codes (A = 1 - 9, B = 10 - 99, C = 100 or more) to record the numbers of organisms found in a 3 foot by 3 foot area. Then add up the number of letters in each column and multiply by the indicated index value. The following columns are divided based on the organism's sensitivity to pollution.

SENSITIVE		SOMEWHAT-SENSITIVE		TOLERANT	
B	caddisfly larvae	A	beetle larvae		aquatic worms
A	hellgrammite	B	clams		blackfly larvae
A	mayfly nymphs		crane fly larvae		leeches
	gilled snails		crayfish		midge larvae
A	riffle beetle adult		damselfly nymphs		pouch (and other) snails
B	stonefly nymphs		dragonfly nymphs		
A	water penny larvae		scuds		
			sowbugs		
		A	fishfly larvae		
			alderfly larvae		
			atherix		
6 # of letters times 3 = 18 index value		3 # of letters times 2 = 6 index value		0 # of letters times 1 = 0 index value	

Now add together the three index values = 24 total index value.

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [✓] Excellent (> 22)
- [ ] Good (17 - 22)
- [ ] Fair (11 - 16)
- [ ] Poor (< 11)

SENSITIVE		SOMEWHAT-SENSITIVE		TOLERANT	
B	caddisfly larvae	A	beetle larvae		aquatic worms
A	hellgrammite	B	clams		blackfly larvae
A	mayfly nymphs		crane fly larvae		leeches
	gilled snails		crayfish		midge larvae
	riffle beetle adult		damselfly nymphs		pouch (and other) snails
B	stonefly nymphs		dragonfly nymphs		
	water penny larvae		scuds		
			sowbugs		
		A	fishfly larvae		
			alderfly larvae		
			atherix		
4 # of letters times 3 = 12 index value		3 # of letters times 2 = 6 index value		0 # of letters times 1 = 0 index value	

Now add together the three index values = 18 total index value.

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [ ] Excellent (> 22)
- [✓] Good (17 - 22)
- [ ] Fair (11 - 16)
- [ ] Poor (< 11)

ST TION 5:

SOUTH BRANCH OUTLET

MACROINVERTEBRATE COUNT

Use the stream monitoring instructions to conduct a macroinvertebrate count. Use letter codes (A = 1 - 9, B = 10 - 99, C = 100 or more) to record the numbers of organisms found in a 3 foot by 3 foot area. Then add up the number of letters in each column and multiply by the indicated index value. The following columns are divided based on the organism's sensitivity to pollution.

SENSITIVE	SOMEWHAT-SENSITIVE	TOLERANT
B caddisfly larvae	A beetle larvae	aquatic worms
A hellgrammite	clams	blackfly larvae
B mayfly nymphs	crane fly larvae	leeches
gilled snails	crayfish	midge larvae
B riffle beetle adult	damselfly nymphs	pouch (and other) snails
B stonefly nymphs	dragonfly nymphs	
A water penny larvae	scuds	
	sowbugs	
	A fishfly larvae	
	alderfly larvae	
	atherix	
6 # of letters times 3 = 18 index value +	2 # of letters times 2 = 4 index value +	0 # of letters times 1 = 0 index value

Now add together the three index values = 22 total index value.

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [ ] Excellent (> 22)
- [x] Good (17 - 22)
- [ ] Fair (11 - 16)
- [ ] Poor (< 11)

SENSITIVE	SOMEWHAT-SENSITIVE	TOLERANT
A caddisfly larvae	A beetle larvae	aquatic worms
A hellgrammite	clams	blackfly larvae
B mayfly nymphs	crane fly larvae	leeches
gilled snails	crayfish	A midge larvae
B riffle beetle adult	damselfly nymphs	pouch (and other) snails
B stonefly nymphs	A dragonfly nymphs	
A water penny larvae	scuds	
	sowbugs	
	A fishfly larvae	
	alderfly larvae	
	atherix	
6 # of letters times 3 = 18 index value +	3 # of letters times 2 = 6 index value +	1 # of letters times 1 = 1 index value

Now add together the three index values = 25 total index value.

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [x] Excellent (> 22)
- [ ] Good (17 - 22)
- [ ] Fair (11 - 16)
- [ ] Poor (< 11)

STATION 6:

NORTH BRANCH OUTLET

MACROINVERTEBRATE COUNT

Use the stream monitoring instructions to conduct a macroinvertebrate count. Use letter codes (A = 1 - 9, B = 10 - 99, C = 100 or more) to record the numbers of organisms found in a 3 foot by 3 foot area. Then add up the number of letters in each column and multiply by the indicated index value. The following columns are divided based on the organism's sensitivity to pollution.

SENSITIVE	SOMEWHAT-SENSITIVE	TOLERANT
A caddisfly larvae	beetle larvae	A aquatic worms
hellgrammite	clams	blackfly larvae
B mayfly nymphs	crane fly larvae	leeches
gilled snails	A crayfish	midge larvae
riffle beetle adult	A damselfly nymphs	pouch (and other) snails
stonefly nymphs	A dragonfly nymphs	
water penny larvae	scuds	
	sowbugs	
	fishfly larvae	
	alderfly larvae	
	atherix	
2 # of letters times 3 = 6 index value +	3 # of letters times 2 = 6 index value +	1 # of letters times 1 = 1 index value

Now add together the three index values = 13 total index value.

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [ ] Excellent (> 22)
- [ ] Good (17 - 22)
- [x] Fair (11 - 16)
- [ ] Poor (< 11)

(D-FRAME)

SENSITIVE	SOMEWHAT-SENSITIVE	TOLERANT
A caddisfly larvae	A beetle larvae	A aquatic worms
hellgrammite	clams	blackfly larvae
A mayfly nymphs	crane fly larvae	leeches
gilled snails	crayfish	midge larvae
riffle beetle adult	damselfly nymphs	pouch (and other) snails
stonefly nymphs	A dragonfly nymphs	
water penny larvae	scuds	
	sowbugs	
	fishfly larvae	
	alderfly larvae	
	atherix	
2 # of letters times 3 = 6 index value +	2 # of letters times 2 = 4 index value +	1 # of letters times 1 = 1 index value

Now add together the three index values = 11 total index value.

Compare this total index value to the following numbers to determine the water quality of your stream. Good water quality is indicated by a variety of different kinds of organisms, with no one kind making up the majority of the sample.

WATER QUALITY RATING

- [ ] Excellent (> 22)
- [ ] Good (17 - 22)
- [x] Fair (11 - 16)
- [ ] Poor (< 11)

(D- FRAME)

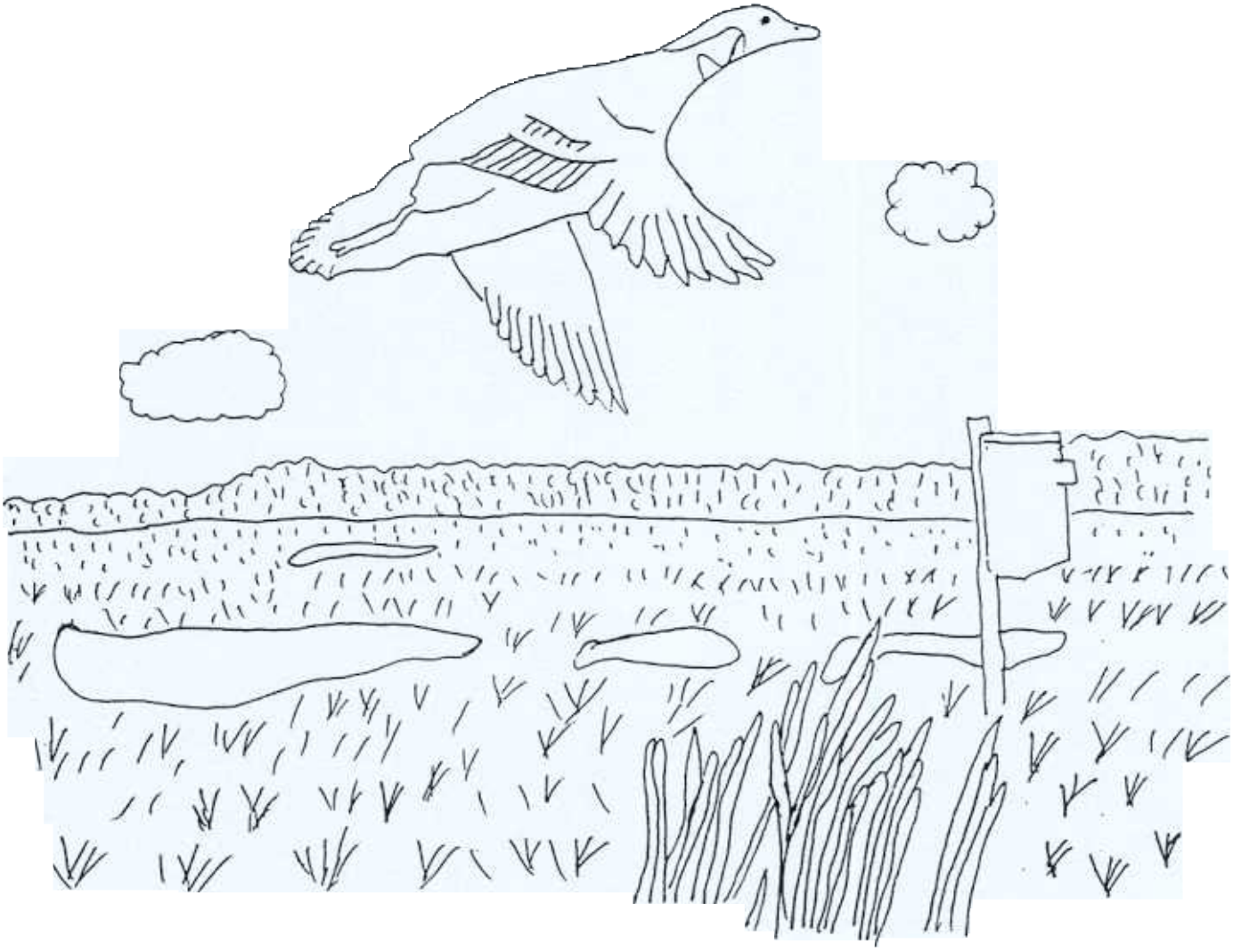
APPENDIX I

WOODDUCK RESTORATION PROGRAM

Deering Conservation Commission

DEERING CONSERVATION COMMISSION

WOOD DUCK RESTORATION PROGRAM



Deering Conservation Commission
Wood Duck Nesting Program

The Deering Conservation Commission initated the Wood Duck Nesting Program in December of 1987 due to dramatic losses of wetlands and waterfowl habitat in the 1980's. The number of ducks in the Atlantic Flyway plummeted during this time period.

The wood duck is a small duck approximately 20 inches in length and weighing about 1 1/2 pounds. The males have a green and purple chest, red eyes and a reddish-orange bill. The females are brown with streaks of green and purple adorning her back and wings. The wood duck is very talkative and has a distinctive call.

Courtship and mating begin in early April and extends into May. After courting is completed, the search for a nesting site begins. Wood ducks nest in almost any natural cavity in a tree which is at least 4 inches in width and far enough above the ground or water to protect it from predators. These natural nesting sites have been severely reduced by the filling of wetlands, draining of ponds and the destruction of large sections of deciduous forests resulting from lumbering operations or residential construction. The nesting boxes are an attempt to substitute artifical nesting sites for natural ones. The female builds a nest from piecies of wood and down pulled from her chest. The female lays from 8 to 15 cream colored eggs which she incubates for 30 days. Hatching season reaches its peak from early June to mid July.

The average size of a wood duck brood is 11. Soon after the eggs have hatched, the mother leaves the nest for the final time that year. She flies to the ground or water below the nest and calls the young ducklings and each jumps out of the nest. The ducklings survive the fall to the ground or water because their bones are soft and still too flexible to break. They head immediately to the water.

The mortality to young ducklings is great. Predators such as turtles, bass and snakes take their toll. By the end of the first week only 8 of the original brood survives. After 4 weeks only 5 or 6 survive. Thus, approximately half of the ducklings hatched each year are lost in the first few weeks. Between 4 to 6 weeks after hatching the ducklings acquire independent feeding habits and the brood begins to break up. The wood ducks diet consists of 90% vegetable matter (acorns, grass, seeds and aquatic weeds) and various invertebrates.

Between 1987 and 1991 the Deering Conservation Commission has constructed and refurbished wood duck nesting sites throughout the Town of Deering. These nesting boxes must be refurbished with fresh shavings each year to assure reuse. While refurbishing the nesting boxes in February and March, a record of each years usage has been maintained and is attached to this report.

The 1990 - 1991 season with its high winds resulted in the loss or destruction of several wood duck nesting sites. This coupled with the draining of several temporal beaver impoundments has resulted in the loss of 12 of the original 31 nesting sites. As the Wood Duck Nesting Box Program progresses, more time and expense is required to maintain and replace existing boxes and to construct new ones. Thus, for the Deering Conservaton Commission has been able to fund this program with donated time and materials. If this program is to increase in scope, participation and funding from other sources will be necessary. Citizens of the Town of Deering who wish to sponser the continued growth of this program with time, materials or funding are urged to contact the Conservation Commission for additional information.

Edward M. Cobbett
Deering Conservation Commission
Deering Town Hall
RFD #1, Box 166
Deering, NH 03244

Box #	Year Installed	Box Type	Location	Map Key	* Usage 1987-1988	Usage 1988-1989	Usage 1989-1990	Usage 1990-1991
DCC-1	1987	#1	2nd New Hampshire Turnpike Beaver Pond	A	Wood Duck 5-1	Not used	Not used	Not used
DCC-2	1987	#2	2nd New Hampshire Turnpike Beaver Pond	A	Not used	Not used	Not used	Not used
DCC-3	1987	#2	2nd New Hampshire Turnpike Beaver Pond	A	Not used	Not used	Not used	Not used
DCC-4	1987	#1	2nd New Hampshire Turnpike Beaver Pond	A	Wood Duck 6-0	Wood Duck 4-0	Wood Duck 4-0	Merganser 6-0
DCC-5	1988	#1	Wilkens Cemetery Beaver Pond	B	N/A	Merganser 6-0	Wood Duck 6-0	Wood Duck 3-2
DCC-6	1988	#1	Lazy Brown Beaver Pond	D	N/A	Not used	Wood Duck 6-2	Wood Duck 6-0
DCC-7	1988	#1	Lead Mine Beaver Pond	C	N/A	Wood Duck 6-0	Wood Duck 5-1	Destroyed
DCC-8	1988	#1	Lazy Brown Beaver Pond	D	N/A	Not used	Wood Duck 2-8	Wood Duck 2-3
DCC-9	1988	#1	Lead Mine Beaver Pond	C	N/A	Wood Duck 4-0	Wood Duck 0-11	Not used
DCC-10	1988	#1	Lead Mine Beaver Pond	C	N/A	Not used	Wood Duck 0-15	Wood Duck 5-0
DCC-11	1988	#1	Tressel Beaver Pond	E	N/A	Not used	Not used	Pond Drained
DCC-12	Existing	#3	Wilkens Cemetery Beaver Pond	B	Wood Duck 0-6	Wood Duck 6-0	Wood Duck 0-8	Not used
DCC-13	Existing	#3	Wilkens Cemetery Beaver Pond	B	Wood Duck 0-4	Not used	Not used	Destroyed
DCC-14	Existing	#3	Deering Reservoir Swamp	F	Wood Duck 0-6	Wood Duck 0-4	Not used	Wood Duck 5-1
DCC-15	Existing	#3	Deering Reservoir Swamp	F	Wood Duck 0-15	Not used	Wood Duck 6-0	Wood Duck 4-2
DCC-16	1988	#1	Deering Reservoir Swamp	F	N/A	Not used	Not used	Merganser 6-0
DCC-17	1988	#2	Tressel Beaver Pond	E	N/A	Not used	Not used	Pond Drained
DCC-18	1988	#2	Tressel Beaver Pond	E	N/A	Not used	Not used	Pond Drained
DCC-19	1987	#2	2nd New Hampshire Turnpike Beaver Pond	A	Not used	Not used	Not used	Destroyed
DCC-20	1989	#1	Deering Audubon South Beaver Pond	G	N/A	N/A	Not used	Wood Duck 5-2
DCC-21	1989	#1	Deering Audubon North Beaver Pond	H	N/A	N/A	Merganser 3-0	Pond Drained
DCC-22	1989	#1	Deering Audubon North Beaver Pond	H	N/A	N/A	Wood Duck 6-0	Pond Drained
DCC-23	Existing	#3	Deering Audubon North Beaver Pond	H	N/A	Wood Duck 6-1	Wood Duck 5-0	Pond Drained
DCC-24	Existing	#3	Sprague's Beaver Pond	K	N/A	N/A	Wood Duck 6-0	Pond Drained
DCC-25	Existing	#3	Sprague's Beaver Pond	K	N/A	N/A	Wood Duck 0-6	Pond Drained
DCC-26	1990	#1	Johnson's Beaver Pond	I	N/A	N/A	N/A	Not used
DCC-27	1990	#1	Johnson's Beaver Pond	I	N/A	N/A	N/A	Not used
DCC-28	Existing	#3	Johnson's Beaver Pond	I	N/A	N/A	Wood Duck ?-Hatched	Destroyed
DCC-29	1990	#1	Hunter's Beaver Pond	J	N/A	N/A	N/A	Wood Duck 5-0
DCC-30	1990	#2	Hunter's Beaver Pond	J	N/A	N/A	N/A	Not used
DCC-31	1990	#1	Hunter's Beaver Pond	J	N/A	N/A	N/A	Not used
			Percent usage of functional sites		$\frac{6}{19}$ = 32%	$\frac{6}{20}$ = 30%	$\frac{14}{25}$ = 56%	$\frac{10}{19}$ = 53%

* Type of Usage
Eggs Hatched — Eggs Unhatched

A 2nd NEW HAMPSHIRE TURNPIKE

B OLD COUNTY ROAD

C NORTH ROAD

D NORTH ROAD

E BENNINGTON DEPOT ROAD

F RESERVOIR ROAD

G CLEMENT HILL ROAD

H CLEMENT HILL ROAD

I CLEMENT HILL ROAD

J FALLS ROAD

K WOLF HILL ROAD

NESTING BOX SITES

LOCATION: TOWN OF DEERING, N.H.

MAP BASE: U.S.G.S. TOPO. HILLSBORO QUAD.

SCALE: 1:62500

FIGU

DRAWN

APPENDIX J

PISCATAQUOG RIVER PARK

MANCHESTER'S RIVERFRONT

Planning and Design for Recreation on the Piscataquog River

MANCHESTER S RIVERFRONT

P ann ng and Des gn for Recreation on the Merr mack and Pisca aquog River

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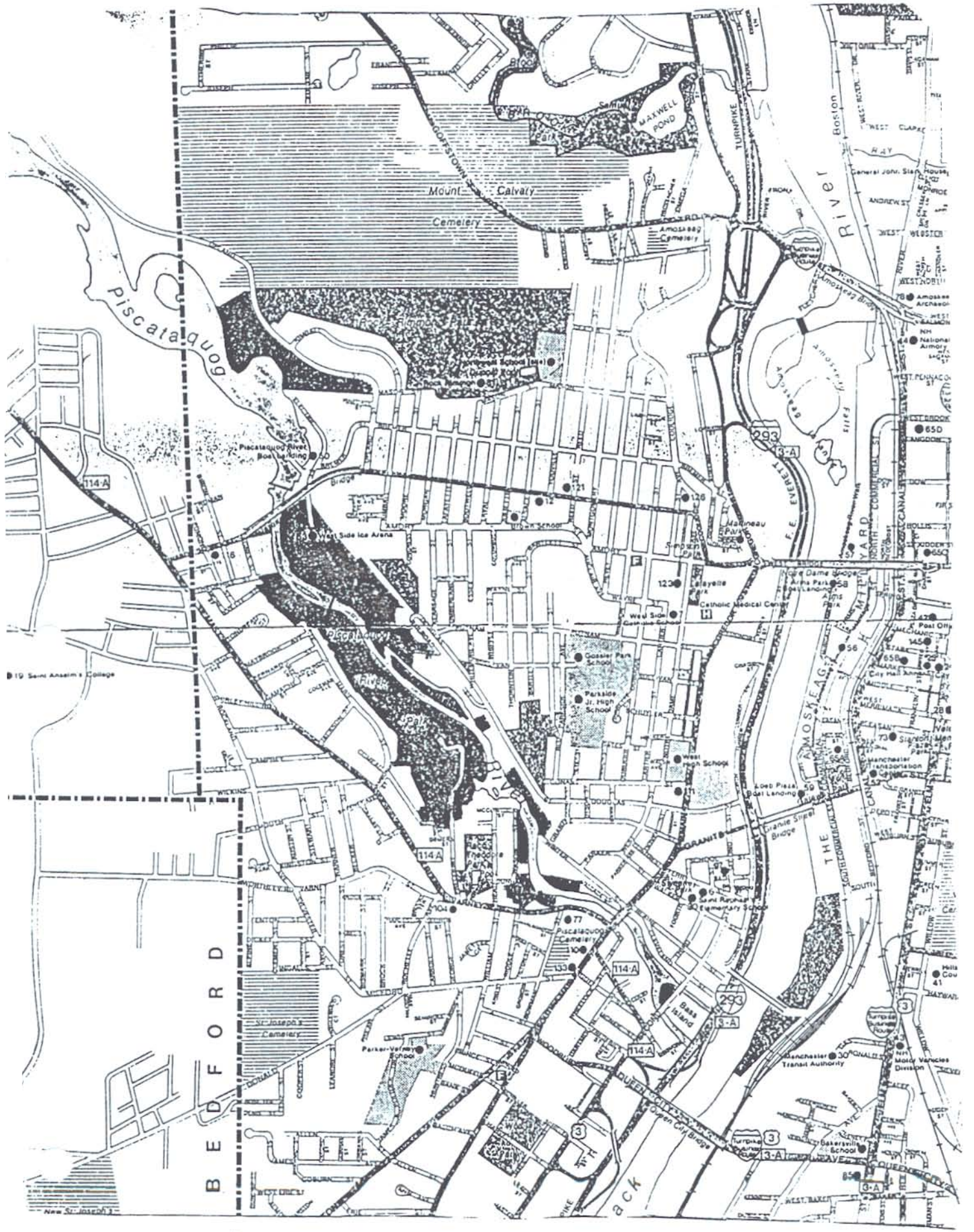


City owned, river-side land

PISCATAQUOG RIVER PARK

Introduction

The Piscataquog River flows east from its origin at Goffstown to its confluence with the Merrimack River in the city of Manchester. The river is dammed just above the narrow valley which is the site of a city park.

Unlike the industrial, urban context of the Merrimack, the 125-acre Piscataquog River Park is a heavily wooded, natural retreat contained by steep embankments and surrounded by residential neighborhoods.

The character of this park is primarily river-oriented, human-scale and intimate. It is presently, and should remain a predominantly pedestrian park.

Three key factors have preserved most of this parkland in its unspoiled condition: the obscure entries, annual flooding, and the steeply sloping topography. The existing park character serves as the precedent for future use and development in this area.

Responding to the needs of the community as stated in the Community Improvement Program, the City of Manchester wishes to develop a master plan for the Piscataquog River Park addressing these special concerns:

--recreational opportunities along the riverfront

--maintenance of open space and woodland

--impact of the storm-sewer intercept installation scheduled for 1981

--possible linkage with the Merrimack River Parklands to form a continuous greenbelt of open land.

Site Analysis

Our first step towards developing a land-use plan was to analyze the site. The result of an examination of aerial and site photographs, field notes and existing maps and reports is an inventory of the key features within the project study area. The main considerations are access, uses, and image, each with problems and assets.

Access.

Problems: --steep embankments and railroad tracks make neighborhood access difficult and long;

--long, inadequately marked entrance roads make finding the park difficult;

--scattered, unconnected city-owned parcels are inaccessible;

--only one pedestrian bridge connects the north with the south banks;

Asset: --limited access preserves natural secluded center of park.

Use.

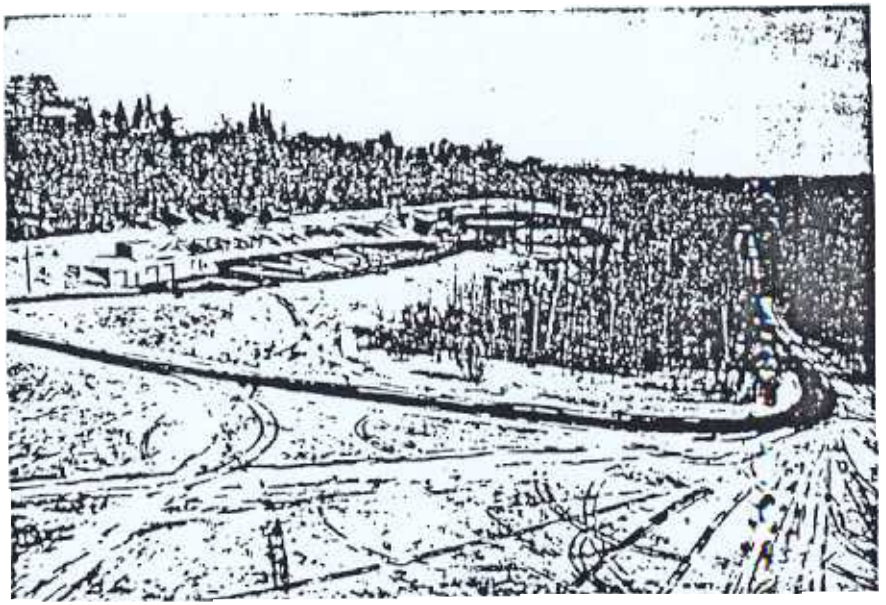
Problems: --parking at Precourt St. entry is undefined;

--automobiles are allowed into the central area and disturb its natural and secluded character;

--there is no existing land-use plan.

Assets: --variety in recreational uses throughout the year include fishing, ice-skating, ballsports, walking, cross-country skiing;

--low banks allow river contact at several points.



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Goals and Objectives

Based on the analysis of the park and the recreation needs of the community, the following goals for development and protection of the park have been established:

--to minimize disturbance of the park's natural features, shoreline and wildlife and to encourage legislated land-use planning protection;

--to encourage diversity of uses from quiet forms of recreation and nature appreciation in the central area to active sports and programmed activities at either extremity;

--to inventory the park's natural resources as the foundation of a proposed interpretation trail;

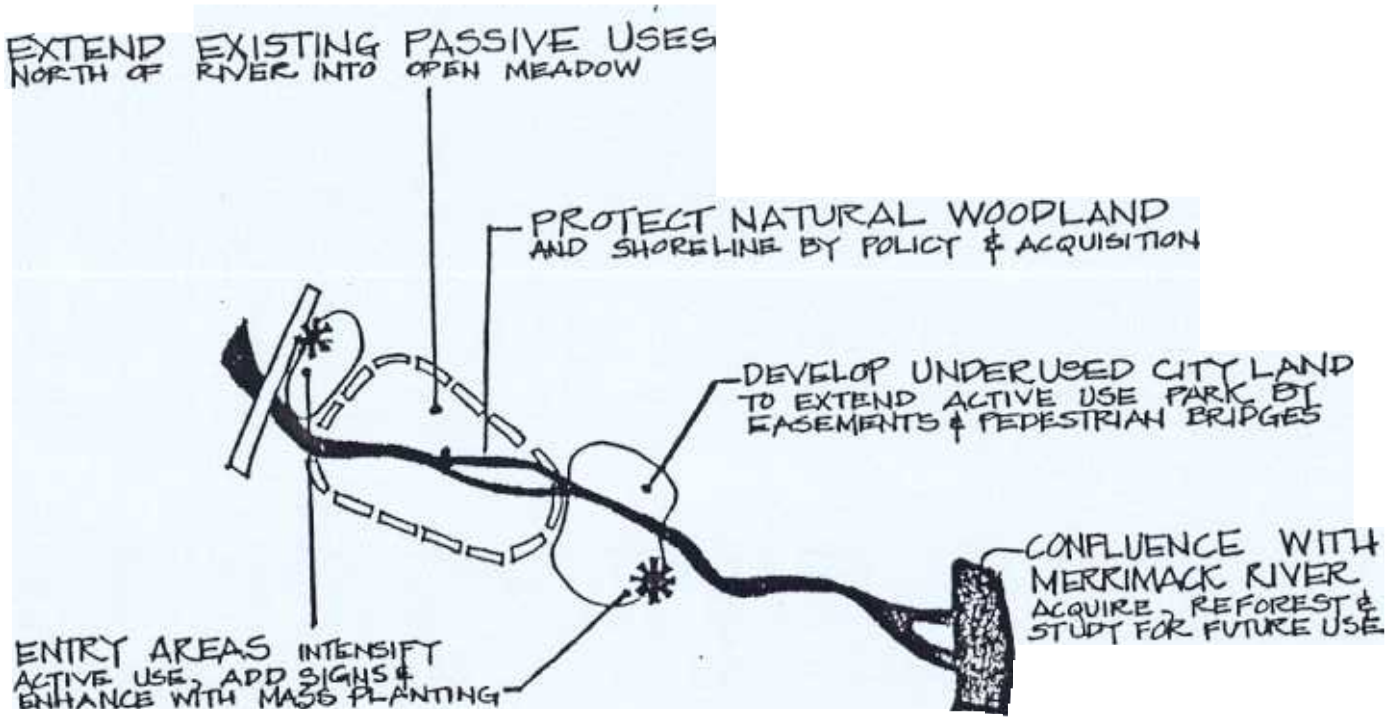
--to establish a trail system for walking, bicycling, and cross-country skiing with minimum impact on ground level flora and fauna;

--to welcome and direct visitors with prominent signs at points of entry, and to provide ample parking in lots that are well integrated with the landscape by mass tree plantings;

--to acquire park-adjacent homes as they become available and to obtain shoreline easements for future public use and protection;

--to link the Piscataquog River Park with the proposed Merrimack River Parks to form a green riverfront park system.

PISCATAQUOG RIVER PARK CROSS-SECTION



Concept

The concept for the Piscataquog River Park is a pedestrian oasis along a natural woodland-bordered river, sandwiched between two areas of concentrated recreational activity which connect the park to the city street network

The park would have two distinct characters and uses: (1) a quiet, river-oriented retreat, and (2) an accessible facility for activities. Protection and land-use policy are critical to the success of this concept.

The proposal for the park is to protect the natural wooded center by clustering active recreation facilities, expanding parking lots at the entrances, and restricting cars and further development from the inner park.

Design Proposals

Design for the Piscataquog River Park is based on the analysis, program and concept which have preceded, and capitalizes on the park's major asset, its natural woodland & riverfront seclusion.

The design, drawn at 1" = 200' is not intended to be a detailed site plan, but the framework from which such a plan must follow. It is a land-use plan, implementing the design goals.

Entrances. Prominent signs of a rustic character and with a graphic image of the park should be placed in a natural setting of trees and woodland plants at Varney and Precourt Streets, and at Kelley Street where the exit from the Biron Bridge intersects. Additional points of entry are not recommended, except that an existing footpath from Ste. Marie St. into the park near the existing pedestrian bridge should be reinforced to check erosion.

Parking lots, Realignment of the Precourt St. entry road toward the baseball diamond and around a parking lot would conveniently divide the northern portion for picnickers and nature center visitors from the southern portion for baseball field users. The Kelley St. entry road should terminate at two parking lots: a new southern lot orienting toward the picnic sites, trails and open field, and the existing northern lot serving ice arena users. Realignment of the Kelley St. entry road would allow for mass tree planting to screen the presently prominent park maintenance/storage shed. Trees should be clustered in islands and around the periphery for shade, screening and to maintain the natural park character.

Pedestrian bridges. The existing metal pedestrian bridge can be made more rustic with the replacement of chainlink fencing with wooden cross rails and handrails, and by re-planting around the abutments with native woodland understory plants. Three additional pedestrian bridges are specified as part of the trail system: two cross over Groux Island and the third is part of the fitness trail. All will increase access and can double as docks.

FACILITIES & USE AREAS

Courts and fields. Two tennis courts and an adjacent basketball court can be constructed near the ice arena. The large open grass fields between the entry roads and the picnic sites should remain grassy and sloped about 4% to assure flexible, open play, such as soccer and volleyball.

Picnic sites including tables, grills and waste baskets should be on the periphery of grass playfields and oriented to the river and the woods. No benches or grills will be installed in the inner wooded park sector. Three shelters are proposed with nearby clustered picnic sites, and a 30' x 80' Fun-in-the-Sun shelter would accomodate large groups.

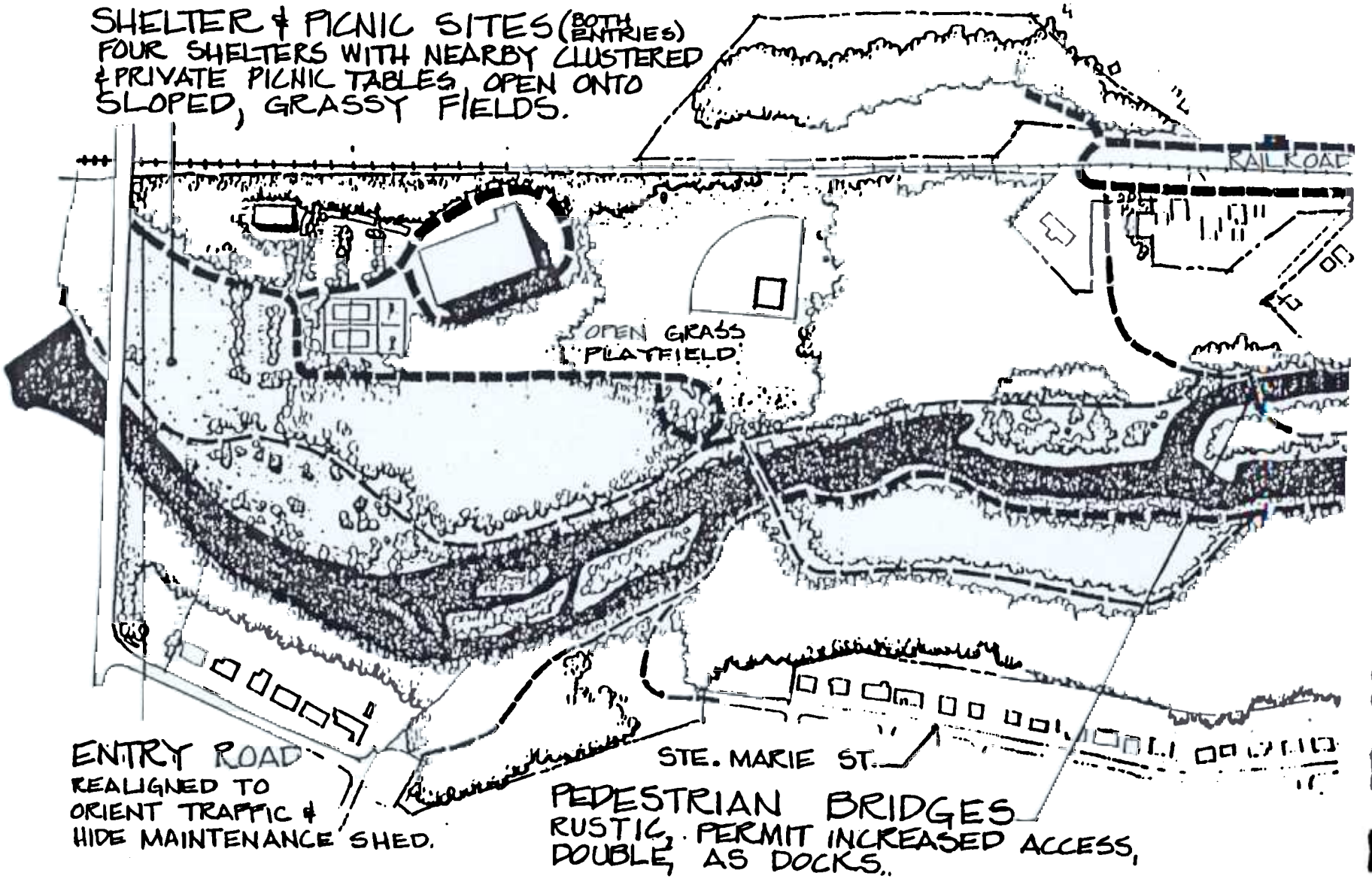
Fitness trail. This 1/2 mile, 6 ft. wide trail with 20 stations can be laid so that a 1 1/2 mile circuit is possible.

Observation tower. A safe and durable observation station west of the Biron Bridge, overlooking the dam would offer excellent views up and down the river. The old gatehouse could be retrofitted for this use.

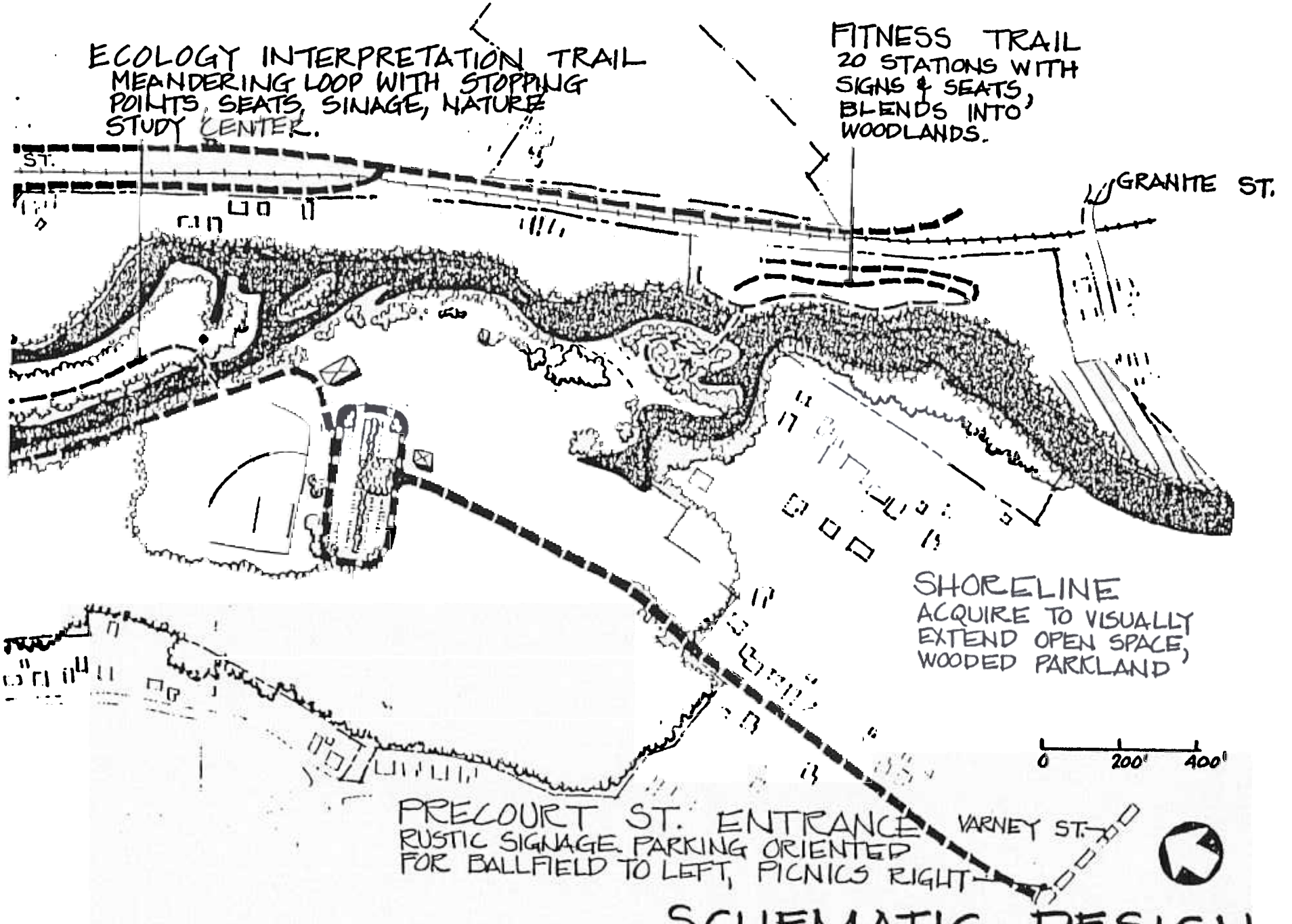
Dock. A 30' x 30' wood dock constructed over the river from the bank near the existing pedestrian bridge would be a landing allowing water contact.

Open meadow. An open grassy meadow can serve as an informal playfield adjacent to the newly constructed softball field, suitable for kite-flying and frisbee. It is meant to provide an expansive, wide-open space, a welcome contrast to the heavily wooded trails.

Neighborhood mini-park. The 1/2-acre site off Agnes St. below the Biron Bridge is presently an unused city-owned parcel. A small sitting park for the neighborhood with trees, shrubs and seating is recommended for this site.



PISCATAQUOG RIVER PARK



SCHEMATIC DESIGN

Nature Study Center and Ecology Interpretation Trails. Proposed nature study center north of the parking lot at the Precourt St. entry would be amulti-purpose, rustic park shelter to serve as a gathering point, a meeting facility, a display and literature disbursement center, and a restroom facility.

The ecology trail, focusing on natural features of the park such as topography, plant communities and wildlife, could be signed for interpretation, and supplemented with trained park guides. The trail should harmonize with the environment and may require elevated boardwalk sections over sensitive and wet areas. Some ecological areas which should be representated are:

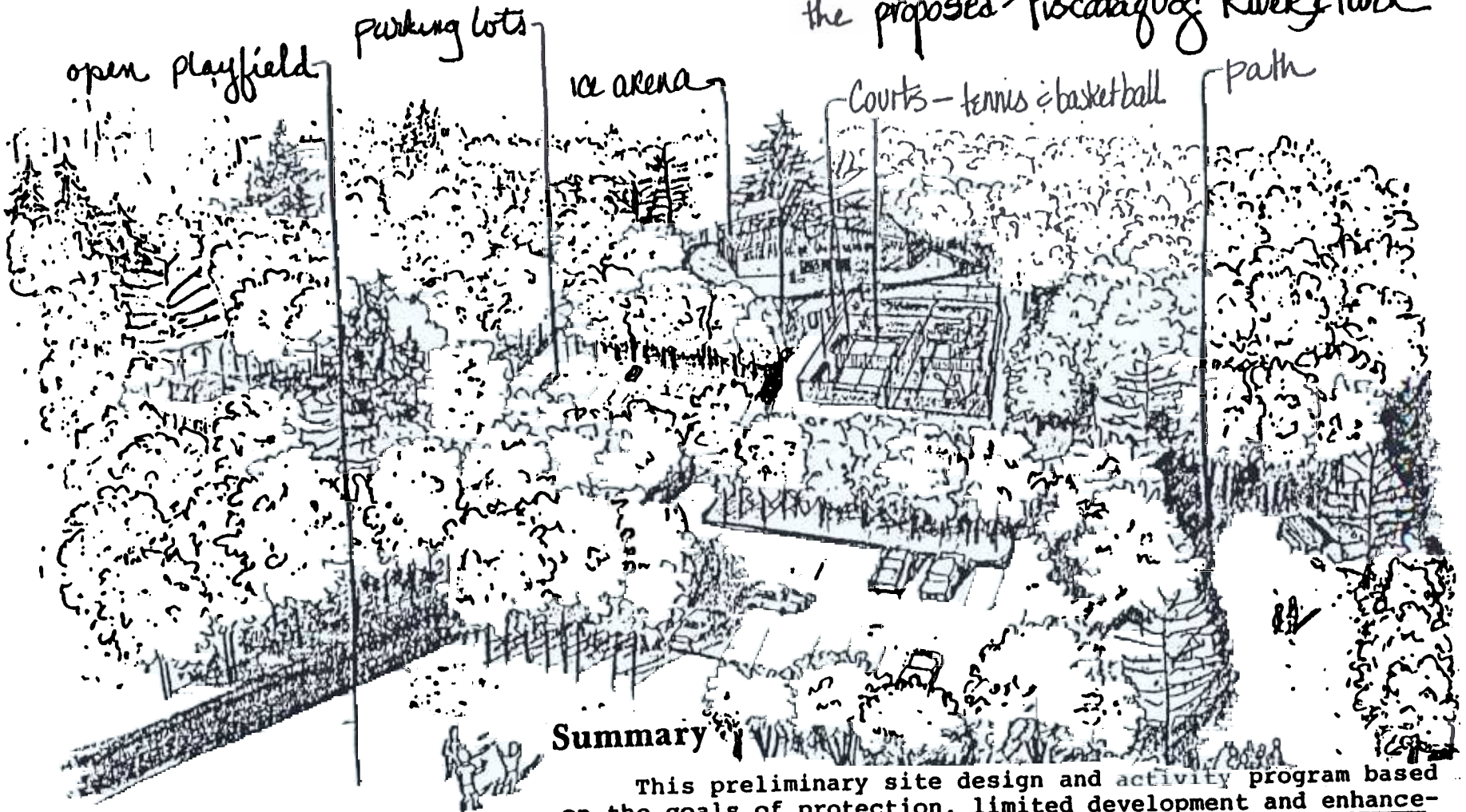
--shoreline;
--river system (measures of river flow, quality, etc.);
--Groux Island;
--woodlands (edges, special stands, regeneration);
--meadow;
--roadside ecosystem;
--marsh and pond;
--geology (parent and ledge rock, etc.).

Recommendations and Acquisitions

A bike system (as described in the appendix) could provide an ideal link for pleasant safe bicycling from the west side neighborhoods to the proposed parks on the east bank of the Merrimack and to the CBD.

Acquisitions would include all of the shoreline of the Piscataquog from the dam to the confluence and the hatched portion shown on the site design plan. This area, a steeply wooded bank, would simply extend the natural park character in a highly visible area across from the picnic sites.

View from the Byron Bridge of the proposed Piscataquog River Park



Summary

This preliminary site design and activity program based on the goals of protection, limited development and enhancement comprise a plan for the future of the Piscataquog River Park. Improving parking and access, segregating the intensely active zones from the inner, quiet zone, and protecting the wooded park character are the predominant criteria for the design plans which should follow.

Capitalizing on the variety within the park and its contrast t the urban environment, will make it a vital component Manchester's riverfront park system.

APPENDIX K

LETTERS OF SUPPORT

SIGNED SUPPORTERS OF THE NOMINATION
(as of April 27, 1992)

Board of Selectmen	Weare
Deering Lake Committee	Deering
Rep. Neal Kurk	Weare
Central NH Planning Comm	
Lyndeborough Con. Comm.	Lyndeborough
The Nature Conservancy	(NH)
New Boston Con, Comm.	New Boston
Society for the Protection of New Hampshire Forests	
Southern NH Planning Comm	
Weare Planning Board	Weare
Deering Con, Comm	Deering
Weare Con. Comm.	Weare
New England Forestry Fdn.	

√ (individuals)

Townes, Charles	New Boston
Robinson, Nelson B.	Francestown
Saltonstall, C. S.	Francestown
Maynard, Louis & Carol	New Boston
Sizemore, Lillian	Weare
Brown, Montague	Weare
Filiault, Gary & Jacqueline	New Boston
Brown, J. Willcox	Dunbarton
Toll, Peggy	Weare
Swiech, Carol A.	New Boston
Brooks, Jon	New Boston
Loranger, David & Donna	Goffstown
Leavitt, Lois M.	Francestown
Stickney, Raymond & Myra	Weare
Kachavos, Kathryn	New Boston
D'Avanza, JoAnn	Goffstown
Stevens, Joan A.	Goffstown
Hendrickson, James	Weare
Woodbury, Candy	New Boston
Daggy, Richard H.	Lyndeborough
Lantz, Charles & Joanne	Weare
Russell, Marion	Weare

Davidson, Judith R	Hanover
Beatty, Paula	Weare
Kayal, Joseph & Patricia	Weare
Andrus, William S.	New Boston
Hendrickson, Sybil P.	Weare
DesRuisseaux, Dana	Manchester
Jackson, Phyllis	Goffstown
Neff, Jeanette	Manchester
Lacet, Paula	Manchester
Baker, Ann Robert	Goffstown
Tucker, Susan	Goffstown
Hoteny, Marelyn	Goffstown
Barteh, Gordon	Goffstown
Sauter, Margaret	Goffstown
St.Helaine, Jackie	Goffstown
Gove, Douglas	Goffstown
Heise, Karen	Goffstown
Bartels, Janet	Goffstown
McKinnon, Ginny	Goffstown
Skpe, Lise E.	Goffstown
Doherty, Jane M.	Goffstown
Sperry, Richard L.	Goffstown
Cuchetti, Alice	Manchester
Parker, Heather	Goffstown
Vigeant, SR. Marguerite	Goffstown
Durfee, Leslie	Goffstown

√ (Conditional Support)

New Boston Conservation Commission
Francestown Planning Board
Francestown Conservation Commission

√ (opposed)

Ellis, Arthur	Francestown

APPENDIX L

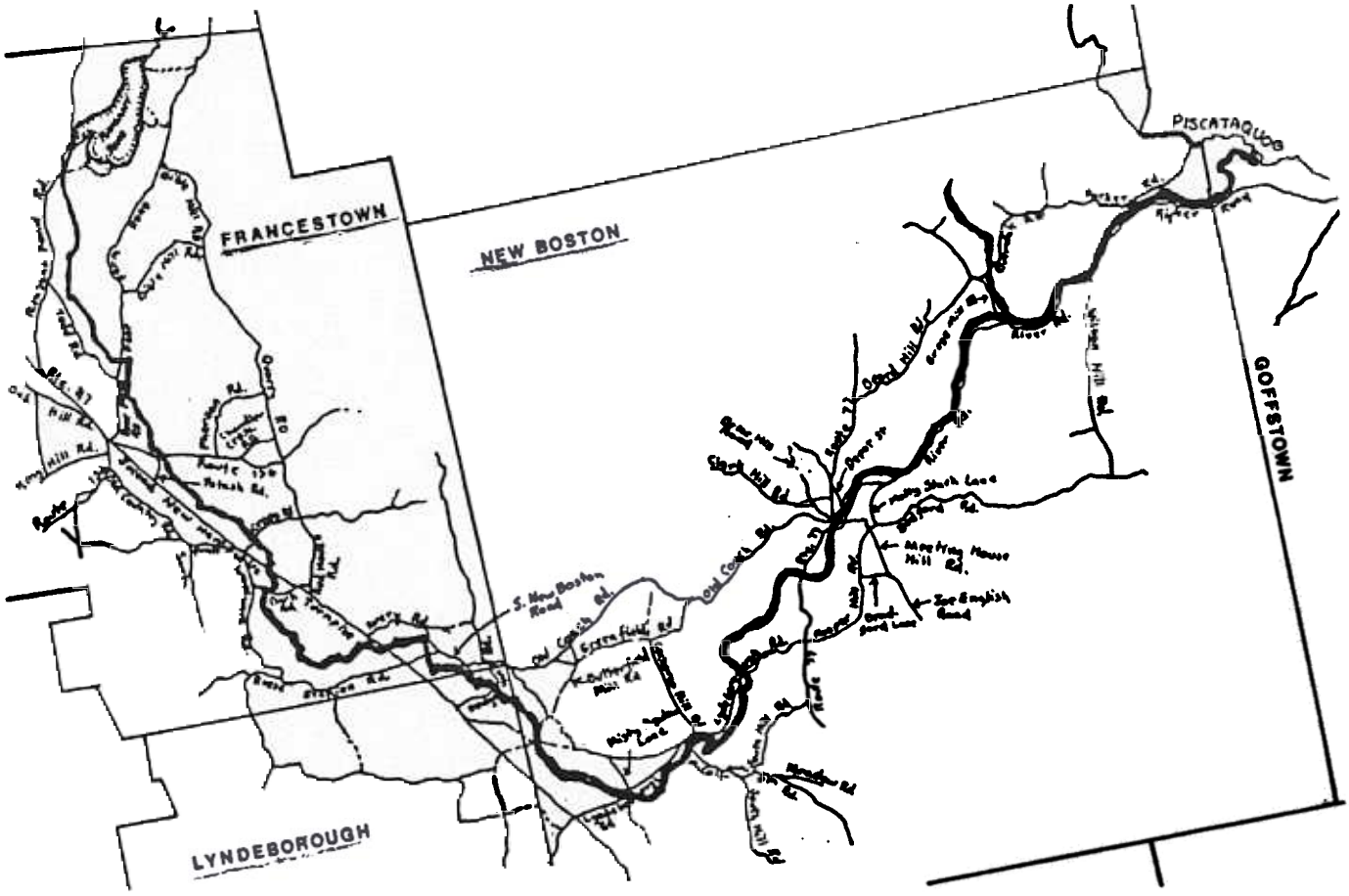
A MANAGEMENT PLAN

for the

SOUTH BRANCH of the PISCATAQUOG RIVER

A Management Plan for the South Branch Piscataquog River

Summary Report



Southern New Hampshire Planning Commission
Manchester, New Hampshire

March 1982

A MANAGEMENT PLAN
FOR THE SOUTH BRANCH PISCATAQUOG RIVER

Prepared by the

Southern New Hampshire Planning Commission
Manchester, New Hampshire

A Special Report as part of the
New Hampshire Outdoor Recreation Plan,
Office of State Planning

The preparation of this inventory was financed in part through a planning grant from the National Park Service, U. S. Department of the Interior under the provisions of the Land and Water Conservation Fund Act of 1965 Public Law 88-578 as amended, and in part through funds appropriated by the New Hampshire General Court.

March, 1982

SOUTHERN NEW HAMPSHIRE
PLANNING COMMISSION
E ELM STREET MANCHESTER NEW HAMPSHIRE 03101

March 26, 1982

Mr. Ronald F. Poltak
Director
Office of State Planning
2 1/2 Beacon Street
Concord, New Hampshire 03301

Attn.: Mr. David Hartman
Assistant Planning Director

Dear Mr Poltak:

We are pleased to transmit the Management Plan for the South Branch Piscataquog River. The textual part, Appendix, as well as the progress reports that have been submitted to your office provide an in-depth description of what has transpired during the planning process and the future work in the Watershed. All efforts have been conducted in accordance with our Contract dated June 3, 1981.

The River Area Planning Committee, consisting of members of the Piscataquog Watershed Association, Trout Unlimited, Conservation Commissions, Planning Boards, and private citizens of towns in the study area deserve acknowledgement. The members spent innumerable hours in providing inputs to every phase of the plan preparation that lasted for almost a year. We offer our warmest appreciation to the entire Committee, in particular, the three co-chairmen, namely Messrs. R. Daggy and G. Katz and Mrs. J. Staub, for their active interest and faith in SNHPC staff work.

Mr. David Hartman, Assistant Planning Director of your office, daserves a special mention. Aside from giving suggestions throughout the study, Mr. Hartman took the trouble of reviewing the final draft and offered valuable comments.

Although several members of our staff participated and share credit for this study, the major portion of the work was done by Mr. Anthony Dater and Mr. Mathew H. Eddy.

Very truly yours,
SOUTHERN NEW HAMPSHIRE
PLANNING COMMISSION

Manindra N. Sharma
Executive Director

MNS/crb

TABLE OF CONTENTS

Chapter		Page
I.	INTRODUCTION.	1
	Study Approach	1
II.	INVENTORY AND ANALYSIS	5
	Analysis Map	5
	Issues	6
III.	PLANNING AND IMPLEMENTATION	8
	Goal Formulation/Resource Use and Protection Map	8
	Management Plan	10
	Priorities For Implementation	12
	Plan Update and Review Mechanism	12
IV.	IN RETROSPECT	14

I. INTRODUCTION

The South Branch Piscataquog River flows through the towns of Francestown, Lyndeborough, New Boston, and Goffstown, which form one of the larger watersheds in the Merrimack River basin. Through continuing efforts of citizen groups such as the Piscataquog Watershed Association (PWA), Trout Unlimited and other private users, the south branch of the Piscataquog River exhibits the characteristics of a scenic and recreational river.

The project for developing a Management Plan for the South Branch Piscataquog River was initiated about a year ago, with a grant from N. H. Office of State Planning and the National Park Service. The Southern New Hampshire Planning Commission (SNHPC) was responsible for conducting the technical work contained in this Plan.

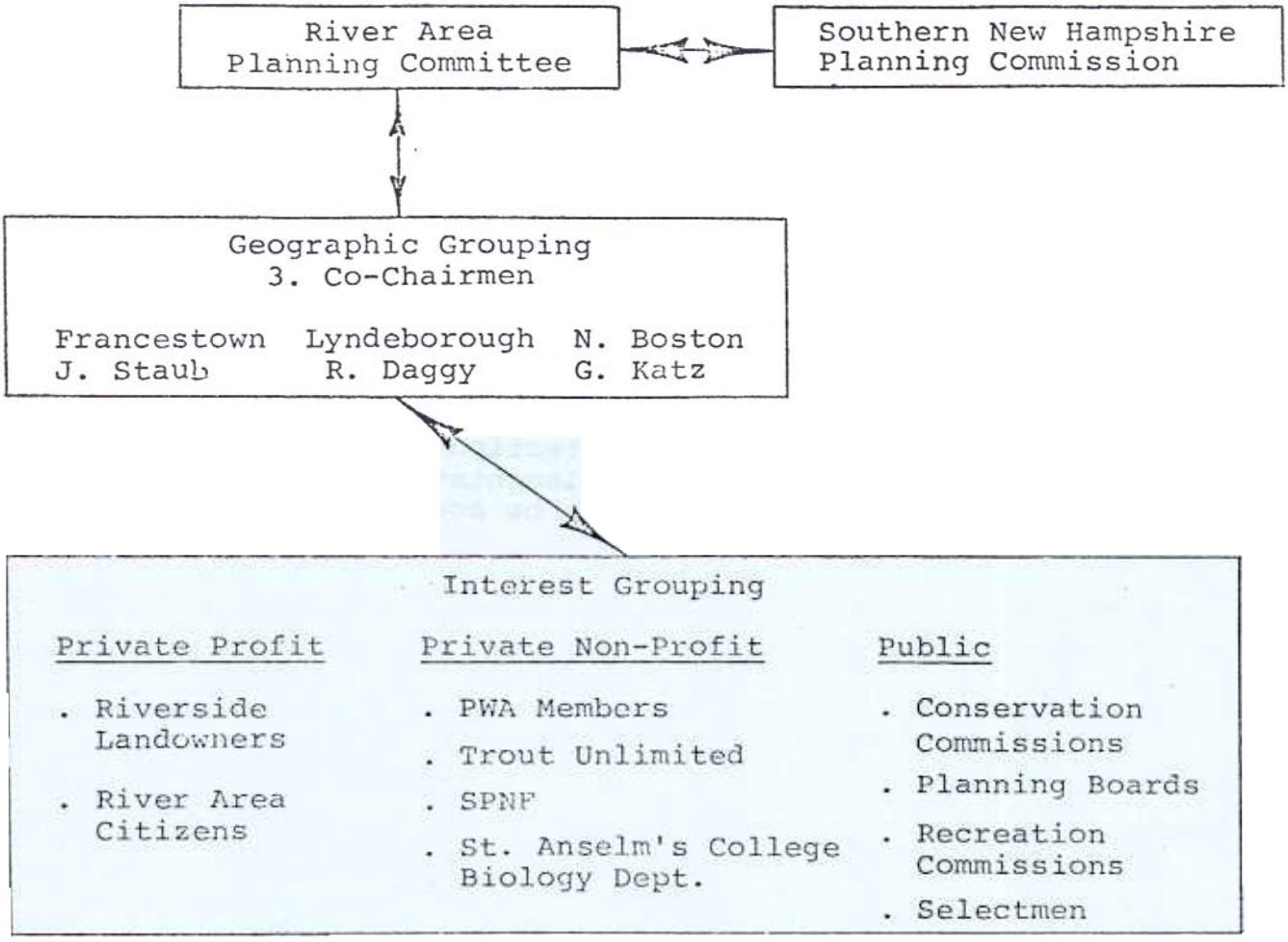
The purpose of this planning study is to provide current information on existing watershed uses (abuses), and to facilitate the development of recommendations for projects, programs and legislative actions. These are to be undertaken by private landowners in the area, the PWA, town boards and town meetings of Francestown, Lyndeborough and New Boston and state agencies. Concurrently, this project is designed to test a model river planning process developed in 1977 in the Wild, Scenic and Recreational Rivers planning book.

Study Approach

A "systems approach" has been utilized in developing the Management Plan. Recommendations are based upon detailed field reconnaissance, data inventories, identification of problem areas, resolution of issues and establishment of priorities for implementation of the Management Plan. The Plan recognizes the effectiveness of each strategy or action and its relative ease of implementation. Study organization and approach are shown on Figure 1, "Planning Process". The River Area Planning Committee (RAPC) provides the basic study guidelines, identification of issues and goals, review of analyses and implementing strategies that are required to effectuate the Management Plan. This Committee is composed of representatives from the Piscataquog Watershed Association, conservation commissions, planning boards, and boards of selectmen of the towns through which the South Branch flows and also abutting property owners. Figure 2 illustrates the composition of the RAPC. A total of thirty-five individuals responded to the invitations and contributed to the South Branch Piscataquog Project throughout the study period.

FIGURE 2

RIVER AREA PLANNING COMMITTEE



II. INVENTORY AND ANALYSIS

Inventory and analysis, constituting the second phase of the South Branch study, consists of the collection and analysis of data pertaining to the physical features of the South Branch environs and to citizen opinion or issues concerning the future use of the South Branch. The collection and analysis of data culminates in two products. The physical features analysis has produced an Analysis Map, which highlights critical environmental conditions, recreation potential and areas of cultural significance. A list of issues that depicts an analysis of citizen concerns and desires has been developed.

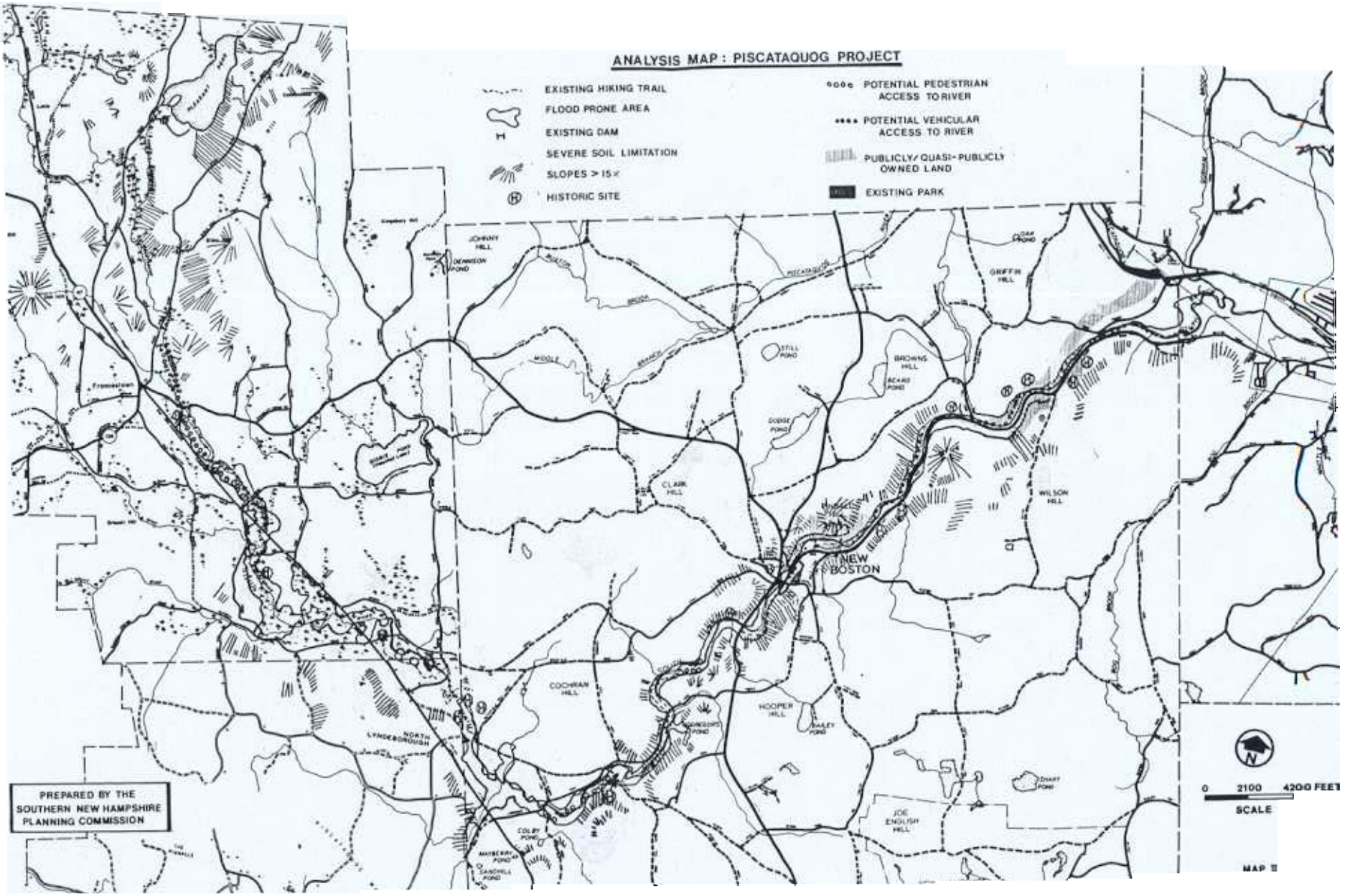
The Analysis Map

The Analysis Map is a synthesis of the following maps: Natural Features, Water Characteristics, Existing Land Use, Accessibility, Land Ownership, Existing Zoning and a field survey. The survey was conducted by SNHPC staff with assistance from the members of the RAPC. Information shown on the Analysis Map can be divided into four broad categories: Environmental, Cultural, Wildlife, and Recreational.

An environmental analysis, dealing with flood prone areas and areas with slopes in excess of 15 percent and severe soil limitations, points to an ecosystem whose survival depends on specific regional, environmental aspects. The rate of outflow (the volume of water in the river channel) throughout the South Branch's length, is dependent upon the continued maintenance of the vast wetlands and floodplain areas, located in Francestown. Decreasing the water storage capacity of these areas will cause increased water levels downstream, especially in the New Boston Village area.

The New Boston area consists largely of hard-packed river bank channels, surrounded by hills of steep slope gradients. Thus, as evidenced by the extensive flood prone areas, New Boston is more susceptible to fluctuating water levels and should endeavor to stabilize any increase in overland runoff. The river reverts to wetland surroundings at its confluence with the North Branch.

The cultural analysis, to include existing dams and historic sites, examines the river's impact upon the lives of human inhabitants. The analysis shows a shift in the role of the river from a source of food supply (Indian settlements); to an emphasis on hydro and mechanical capacities; to the present use of the river as an amenity suitable to metropolitan, commuter residents and retirees. The policy towards land development has reflected these changing roles, where the emphasis is clearly away from the commercial operations of the past.


ANALYSIS MAP : PISCATAQUOG PROJECT
EXISTING HIKING TRAIL
FLOOD PRONE AREA
EXISTING DAM
SEVERE SOIL LIMITATION
SLOPES > 15%
HISTORIC SITE
POTENTIAL PEDESTRIAN ACCESS TO RIVER
POTENTIAL VEHICULAR ACCESS TO RIVER
PUBLICLY/QUASI-PUBLICLY OWNED LAND
EXISTING PARK
JOHNNY HILL
DENNISON POND
OAK POND
GRIFFIN HILL
STILL POND
BROWNS HILL
BEARE POND
DODGE POND
CLARK HILL
WILSON HILL
NEW BOSTON
COCHRAN HILL
HOOPER HILL
BAILEY POND
NORTH LYNDEBOROUGH
JOE ENGLISH HILL
SNAKE POND
COLBY POND
MAYBERRY POND
SANDHILL POND
PREPARED BY THE SOUTHERN NEW HAMPSHIRE PLANNING COMMISSION
0 2100 4200 FEET
SCALE
MAP II

An analysis of wildlife refers back to the existance of the watershed ecosystem. Ecosystem, being defined as the interaction between physical features and organisms, demands that the physical properties of the watershed area be conserved thus protecting the niches of existing wildlife.

The recreation analysis dealing with hiking trails and existing parks, typifies the river's present pattern of shifting intensity of recreational use downstream from Francestown to the North Branch confluence. Physical features inhibit recreational development in Francestown to one of informal use. New Boston, with pre-existing vehicle access and a Scenic Road Designation along Route 13, is identified as an area suitable for formal development. The areas lying inbetween New Boston and Francestown are identified as suitable for informal, recreational pursuit with Appalachian Mountain Club (AMC) canoe access points designation, for example, already established.

Issues

The Issues presented in Table II-1 constitute a three tier planning effort. As a first step, a Questionnaire relating to problems, assets and issues of the South Branch region, has been distributed by RAPC members to relevant town boards, associations and river abutting property owners. The second step has involved an analysis of completed questionnaires by the RAPC. The third and the final step, involves a synthesis of different issues into sixteen categories that were addressed during the planning process. These have been left in question form to initiate debate.

The intragroup debate among RAPC members which led to ultimate resolution of issues made the SNHPC staff knowledgeable on the areas of agreement/disagreement and even relative importance attached to individual issues.

III. PLANNING AND IMPLEMENTATION

The planning and implementation phase of the Planning Process represents the transition from the analyses of physical features and issues into development of goals and policies that move from general concepts to specific actions. Presentation of this development process is broken down into two categories: Goals Formulation and the Resource Use and Protection Map (i.e. general policy development), and the Management Plan or implementation strategies dealing with specific actions.

Goals Formulation/Resource Use and Protection Map

The process that results in the Goals Statements presented in Table III-1, begins with the development of position statements. Using the Issues of Table II-1 as a guideline, the staff set out to research the questions raised during RAPC meetings. The presentation of this information supplemented with information provided by guest speakers formed the basis for position statements

The final form, as shown below, is the product of significant refinement by the RAPC through subsequent meeting reviews:

TABLE III-1

GOALS OF THE SOUTH BRANCH PISCATAQUOG RIVER STUDY

To promote land uses that retain the character of the landscape without significantly altering the biological diversity of the aquatic and terrestrial environments and maintain the stability of existing river flow characteristics.

To adopt land management policies which recognize the scenic and recreational values of the South Branch while maintaining the economic value of adjacent land.

To assign priorities in the preservation of land according to its significant ecological and cultural quality through permanent public, private non-profit ownership (or easement arrangement).

To develop land management policies which reflect the rationale that the South Branch is but a part of the larger Piscataquog Watershed and that significant changes in its environmental characteristics (irrespective of municipal boundaries) will have a resounding impact on other areas of the watershed.

To allow a limited pedestrian public access, in areas where the environmental balance is endangered minimally

The Management Plan

The Management Plan or implementation strategies is the final stage of the planning process and consists of specific actions with appropriate methods of implementation The presentation that follows has been divided into three categories: Management Plan or implementation strategies as endorsed by the RAPC; Priorities for Implementation, and Plan Update and Review Mechanism.

Strategies

A summary description of each strategy along with the Management Plan Map follows:

1. Land Holding In Perpetuity is a strategy of prioritization for increasing land holdings in private trust, of the Piscataquog Watershed Association. It is designed to provide for preservation in perpetuity.

   Land categories are prioritized in three steps:

   a) Prioritizing land according to critical environmental characteristics crucial to the watershed and areas of significant cultural background;

   b) Prioritizing land from Step (a) according to development potential, based on aesthetic amenities, location to existing access routes and recent development in the area;

   c) Prioritizing land based on landowner intentions in the future, for those parcels identified in Step (b).

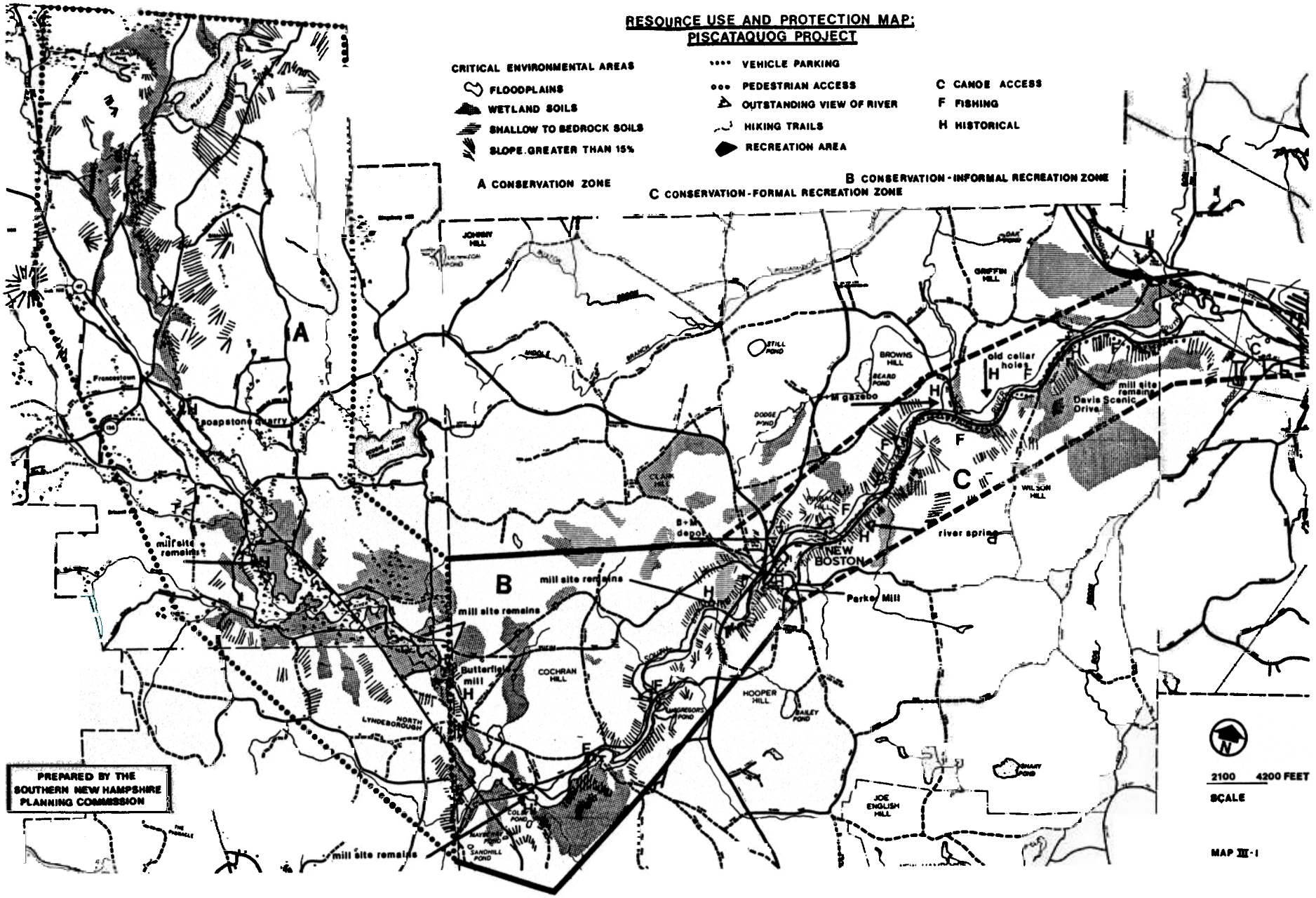
   The PWA has been presented with a series of techniques used to hold land, including but not limited to outright purchase of land, purchase of development rights, granting easements across land or granting of development rights. Tax incentives relative to the above techniques have been explored.

2. Local Enforcement of Excavation Operations within the guidelines of Chapter 155-E, New Hampshire Revised Statutes Annotated.

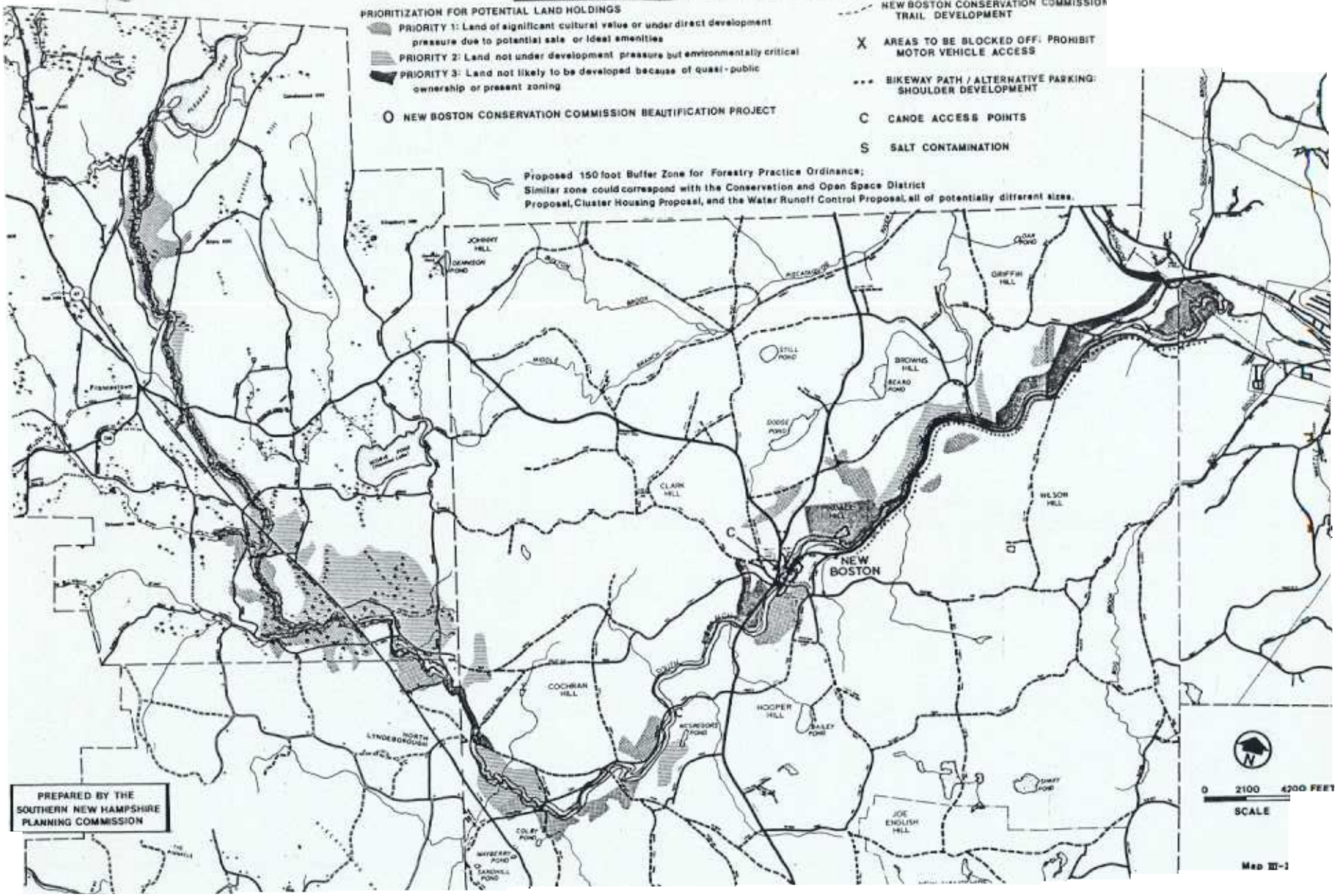
3. Timber Harvest Ordinance designed to maintain environmental conditions within 150 feet of the river, decreasing erosion potential. The ordinance is an extension of Chapter 224, Sections 44a-c, New Hampshire Revised Statutes Annotated and provides for the review of practices when there is a declared change of land use.

4. A Local Ordinance Extending The Police Powers Of Local Health Officers in relation to Seasonal Home Conversions without an improved septic system or plan.

RESOURCE USE AND PROTECTION MAP: PISCATAQUOG PROJECT



MANAGEMENT PLAN MAP: PISCATAQUOG PROJECT



15. Establish Restricted Fishing Areas' In Order That Holdover Areas be created for the potential improvement in the supply of trout.

16. Development of an Educational Pilot Project designed to educate children, and their parents, of the importance of the Piscataquog Watershed.

Priorities For Implementation

Prioritization as presented in Figure 3 has been designed for implementing one or more than one strategy. It is recommended that strategies with higher ratings be implemented before others.

Rating is based upon a subjective weighting of two variables: effectiveness in protecting the South Branch and ease of implementation. Effectiveness in protection reflects high scores if the strategy will have a positive environmental impact upon the river, while low represents little positive impact on the river environment. Ease of implementation measures the political acceptability of each strategy; "high" reflecting easy implementation, while "low" reflects a more difficult implementation process.

Plan Update and Review Mechanism

Since most of the individual strategies are to be enacted by local and state agencies, their continued interest beyond the planning phase is critical to the successful implementation of this Plan. It is recommended that a voluntary committee hereafter referred to as RAPC II be created to oversee the implementation. The scope of the work of this committee will be:

to evaluate the progress toward implementation of strategies approved by relevant actors to coordinate studies and design of new proposals to improve implementation;

to evaluate the reasons for failure of recommended strategies;

to coordinate planning strategies which involve more than one actor for effective implementation;

to coordinate tactics which influence and improve the potential for implementation of specific strategies.

To ensure a continuity between planning and implementation, the Piscataquog Watershed Association has agreed to chair the RAPC II and coordinate its functions. Proposed membership to RAPC II should include representatives from both town conservation commissions and planning boards, Southern and Southwest Region Planning Commissions, Office of State Planning, Trout Unlimited and the Society for the Protection of New Hampshire Forests.

IV. IN RETROSPECT

The Piscataquog Project has produced data, either through field reconnaissance and/or questionnaire and position statements of the interested citizens, in particular the River Area Planning Committee, that form the basis for continuing planning and implementation in this area. The study has explored various options or strategies that are available for protecting the watershed areas of the South Branch.

Given the fact that the RAPC members have provided inputs and direction throughout the study, it is hoped that these members, either individually or collectively, will help implement specific actions of the Management Plan.

PISCATAQUOG
Watershed Association

RECEIVED
AUG - 5 1992
DEPARTMENT OF
ENVIRONMENTAL SERVICES

Vol. 3, No. 5 July 1992

SPECIAL EDITION NEWSLETTER

To: PWA MEMBERS and LANDOWNERS ALONG THE PISCATAQUOG

In 1991 the Piscataquog River was considered to be one of New Hampshire's most important rivers by the Commissioner of the Department of Environmental Services and the New Hampshire Rivers Management Advisory Committee. RSA 483, the NH Rivers Management and Protection Program provided the statute which makes it possible to nominate a few selected rivers for protection.

The PWA has sponsored the nomination of the Piscataquog into the state's program. Letters of information have been sent. Meetings have been held in all watershed towns through which the river flows. A 200-page river-data application was submitted to the state on April 27th. The PWA made an oral presentation of the nomination before the Rivers Management Advisory Committee (RMAC) on May 27th and organized and lead an all-day river tour for that Committee on June 10th.

NEXT STEP?

TWO PUBLIC HEARINGS ON THE RIVER NOMINATION

First Hearing: AUGUST 6th, New Boston School, 7:30 P.M.

Second Hearing: AUGUST 10th, Stark Hall (Next to Congregational Church), Goffstown, 7:30 P.M.

These hearings will consist of the following:

- √ presentation of the NH Rivers Program by the state
- √ map & slide presentation of the river by the PWA
- √ questions and comments by the audience

These hearings are the most critical part of the nomination process. The importance of your publicly stated opinion, as concerns the protection of the Piscataquog River, cannot be overstated. The river's future may well depend upon your participation and support. Come to one of the hearings.

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STATE RIVERS MANAGEMENT ADVISORY COMMITTEE IMPRESSED BY THE PISCATAQUOG AND ITS HISTORY

On June 10th the PWA conducted a guided tour of the Piscataquog River for the state's rivers advisory committee. The general itinerary was as follows:
North Branch, North Weare Village - Reservoir Drive - Abijah Bridge. East Deering Road and walk to Old Stone Bridge. Viewed upper reaches of Lake Horace Prime Wetland, which is along the North Branch. Pleasant Pond Road, Deering; viewed marsh at Traulsen's. South Branch: mouth of South Branch at Pleasant Pond, Francestown to Mill Village and historic site (Soapstone Works). Middle Branch: two outlets from Scobie Pond, Francestown along Scobie Road, across Route 136 to river crossing on Colburn Road, to Middle Branch Road ; took walks to various river points. South Branch: Lyndeborough. Rivers Group was provided a fine lunch by Hormoz Soheili at Dr. Richard Daggy's home alongside the river. Group walked from High Bridge Road, along the river to the historic site at Butterfield Mill (kindness of Bill & Shirley Mulligan). Stopped at site of paper mill in New Boston. Followed river along Lyndeborough Road into New Boston, along state Scenic Road (Route 13) stopping at Gregg Mill Road. Continued down river to Howe Bridge, stopping at Good Berry Farm (kindness of Paul Hansen & Heather Parker) to view confluence of North and South Branches. North Branch: Traveled along River Road, Weare, to Everett Flood Control facility.

The Rivers Management Advisory Committee represented the following statewide interests: Business & Industry Association, Fish & Game Commission, Granite State Hydropower Association, Conservation Commissions and Conservation Communities, Recreational Interests, Historic/Archaeological Interests, Department of Environmental Services and of Resources & Economic Development.

Note: In subsequent meetings with these committee members, they have repeatedly made it clear how much they were impressed with the 'privateness' of the river and how significant the watershed was in its contribution to the colonial history of southern New Hampshire.

PWA EXPLORING THE POSSIBILITY OF PRODUCING A PISCATAQUOG RIVER HISTORY

Each watershed town has its own HISTORY OF _____. These tomes are indeed unique, each being a treasure in it's own right. While only a few read those books, even fewer fine the incentive to read those recorded histories printed about neighboring towns. It is the idea of the PWA that perhaps the river can become a central focus upon which the collective histories of the watershed towns can be compiled.

What the data gatherers found, as information was compiled for the nomination of the river into the NH Rivers Management and Protection Program, was that the river supplied the natural resource for a vast array of early colonial enterprises. The wheels of at least 150 mills were turned by watershed streams. The products coming from those industries, whether they employed one hand or dozens of hands, is at once mind-boggling and wonderful.

The Valley of the Piscataquog, all 220 square miles, is replete with story after story, anecdote after anecdote, of rich history. White Pine, of enormous diameter and height, first attracted the English King's Royal Surveyors to the watershed. Upon discovering those 'mast' trees, attention was focused upon 'our' watershed lands. The area was forever changed after that discovery.

From Samuel Bass Island, where the Piscataquog River empties into the Merrimack at the bottom of the watershed, to stone foundations which supported colonial mills and hope at the top of the river, the stream's history is a collective one.. The data already collected is impressive. It is the tentative plan of the PWA to meet with the area's historical societies, and others, for the purpose of exploring the possibility of producing a history, using the river as its central theme. The goal of such an effort being to broaden knowledge and appreciation of the river.

If you believe this endeavor has possibilities and you would like to review the 200 page river management and protection program application, please call 529-7457 and arrangements will be made to loan you a copy.

WATERSHED'S RARE ORCHID REAPPEARS

The Piscataquog watershed's globally rare orchid, the Small Whorled Pogonia, discovered growing here in 1988 continues its tradition of being unpredictable. Eyes of botanists failed to see any growing plants during the 1990/1991 growing seasons. While the flower is known to be erratic, all the same, it is troubling when a year, or two, or three, passes when conditions simply are not right for growth. Anxiety, however, does grow when no plants are to be found.

Those same trained eyes, however, did find plants this year. Now that's good news.

MEMBERSHIP

WHY JOIN THE PWA?

WHAT BENEFITS ARE THERE IN MEMBERSHIP FOR ME AND MY FAMILY?

DOES THE PWA DESERVE MY INTEREST AND SUPPORT?

In today's hectic merry-go-'round of family and societal responsibilities, our attentions and resources are stretched close to maximum. How can we be expected to add yet another layer to the burden?

It is precisely because of these trying and uncertain times that we must rely upon some calming, positive influence to keep our values in tune. The river, its brooks, ponds, lakes and wetlands are there, each with natural gifts galore. They are priceless and irreplaceable.

CONSIDER THIS: The PWA, since 1970, along with many landowners and a few extraordinary people have been responsible for keeping much of the watershed's natural system healthy and in place. The PWA assists in the preservation and protection of land; builds trails and guides tours; talks to and shares watershed experiences with school children and adults; gives talks before organizations, performs water quality tests, monitors preserved lands, and much more.

HERE'S THE PITCH:

By joining the PWA, you and your family will become better acquainted with the river, its history, and its countless benefits. What you will gain from membership will help smooth over the rough edges of everyday life.

BECOME A MEMBER NOW AND YOUR MEMBERSHIP WILL BE GOOD UNTIL DECEMBER 1993.

The NH Department of Environmental Services, together with the PWA, announces public meetings for the purpose of receiving comments related specifically to RSA 483 and the nomination of the Piscataquog River into the NH Rivers Management and Protection Program.

August 6th, New Boston School--7:30 pm

August 10th, Stark Hall, Goffstown--7:30 pm

Your support is essential!

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Watershed Association

IMPORTANT RIVER MEETINGS

Please Try To Attend!