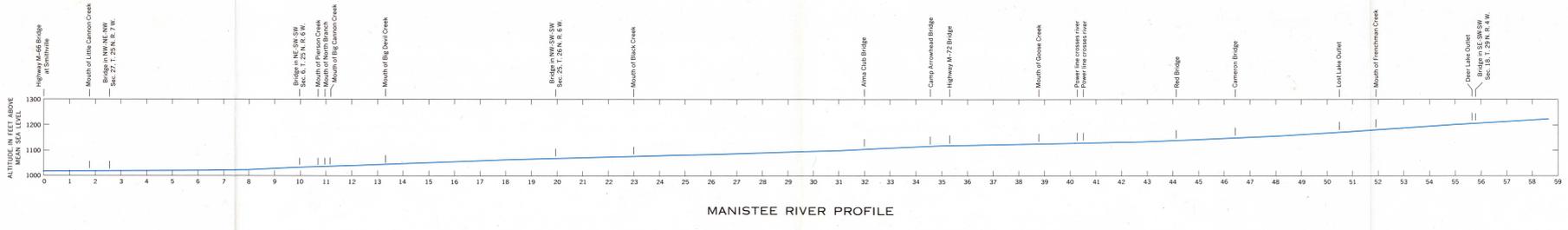
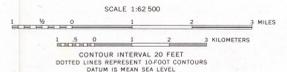
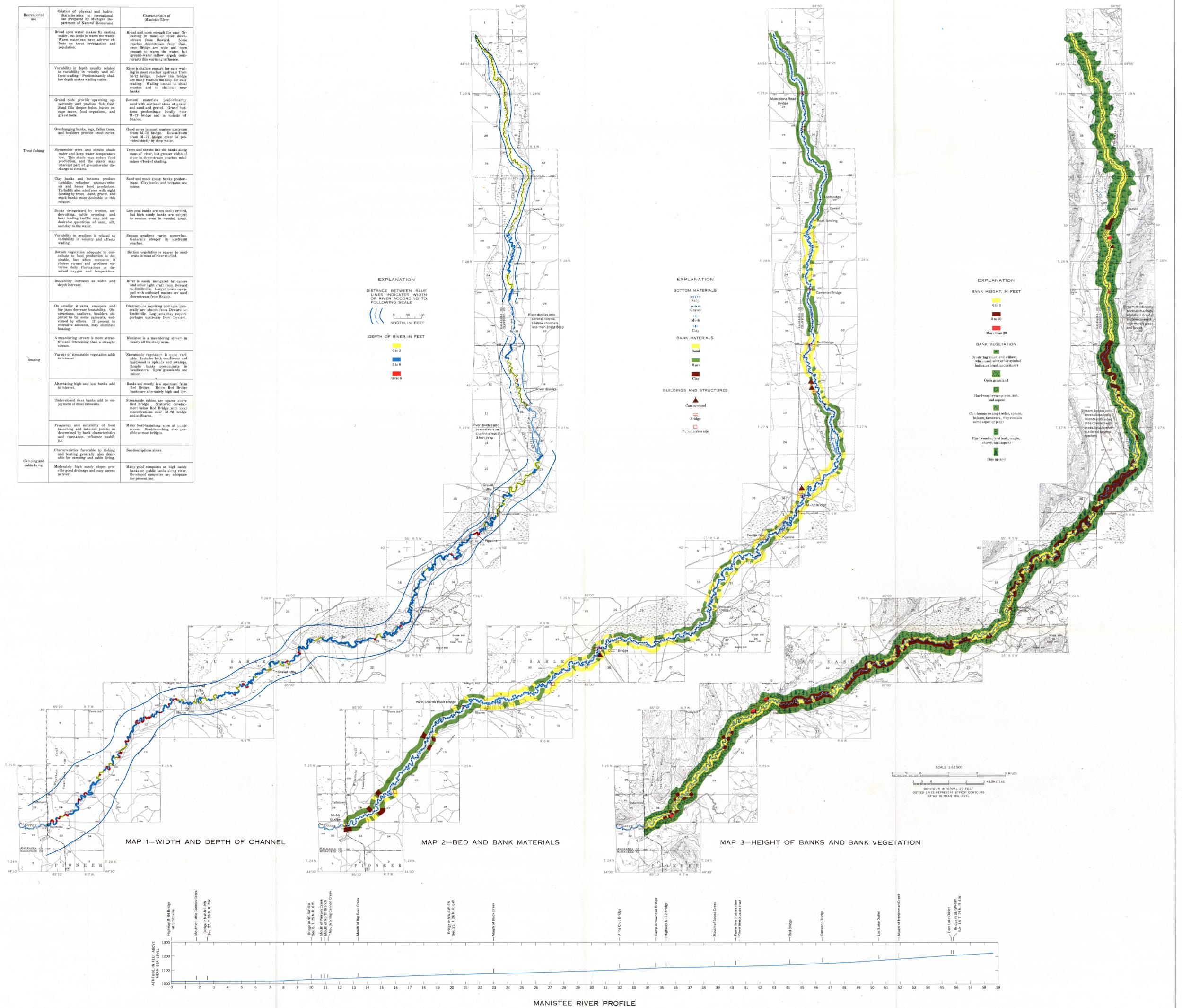
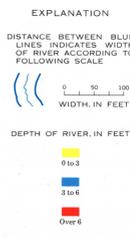


Recreational use	Relation of physical and hydro- characteristics to recreational use (Prepared by Michigan Department of Natural Resources)	Characteristics of Manistee River
	Broad open water makes fly casting easier, but tends to warm the water. Warm water can have adverse effects on trout propagation and population.	Broad and open enough for easy fly-casting in most of river downstream from Deward. Some reaches downstream from Cameron Bridge are wide and open enough to warm the water, but ground-water inflow largely counteracts this warming influence.
	Variability in depth usually related to variability in velocity and effects wading. Predominantly shallow depth makes wading easier.	River is shallow enough for easy wading in most reaches upstream from M-72 bridge. Below this bridge are many reaches too deep for easy wading. Wading limited to shoal reaches and to shallows near banks.
	Gravel beds provide spawning opportunity and produce fish food. Sand fills deeper holes, buries escape cover, food organisms, and gravel beds.	Bottom materials predominantly sand with scattered areas of gravel and sand and gravel. Gravel bottoms predominate locally near M-72 bridge and in vicinity of Sharon.
	Overhanging banks, logs, fallen trees, and boulders provide trout cover.	Good cover in most reaches upstream from M-72 bridge. Downstream from M-72 bridge cover is provided chiefly by deep water.
Trout fishing	Streamside trees and shrubs shade water and keep water temperature low. This shade may reduce food production, and the shade may intercept part of ground-water discharge to streams.	Trees and shrubs line the banks along most of river, but greater width of river in downstream reaches minimizes effect of shading.
	Clay banks and bottoms produce turbidity, reducing photosynthesis and hence food production. Turbidity also interferes with sight feeding by trout. Sand, gravel, and muck banks more desirable in this respect.	Sand and muck (peat) banks predominate. Clay banks and bottoms are minor.
	Banks denuded by erosion, undercutting, cattle crossing, and boat landing traffic may add undesirable quantities of sand, silt, and clay to the water.	Low peat banks are not easily eroded, but high sandy banks are subject to erosion even in wooded areas.
	Variability in gradient is related to variability in velocity and affects wading.	Stream gradient varies somewhat. Generally steeper in upstream reaches.
	Bottom vegetation adequate to contribute to food production is desirable, but when excessive it chokes stream and produces excessive daily fluctuations in dissolved oxygen and temperature.	Bottom vegetation is sparse to moderate in most of river studied.
Boating	Boatability increases as width and depth increase.	River is easily navigated by canoe and other light craft from Deward to Saultville. Larger boats equipped with outboard motors are used downstream from Sharon.
	On smaller streams, weavers and log jams decrease boatability. Obstructions, shallow, boulders obstructed by some canoes, washed by others. If present in excessive amounts, may eliminate boating.	Obstructions requiring portages generally are absent from Deward to Saultville. Log jams may require portages upstream from Deward.
	A meandering stream is more attractive and interesting than a straight stream.	Manistee is a meandering stream in nearly all the study area.
	Variety of streamside vegetation adds to interest.	Streamside vegetation is quite variable. Includes both coniferous and hardwood in uplands and swamps. Brushy banks predominate in headwaters. Open grasslands are minor.
	Alternating high and low banks add to interest.	Banks are mostly low upstream from Red Bridge. Below Red Bridge banks are alternately high and low.
	Undeveloped river banks add to enjoyment of most canoeists.	Streamside cabins are sparse above Red Bridge. Scattered development below Red Bridge with local concentrations near M-72 bridge and at Sharon.
	Frequency and suitability of boat launching and take-out points, as determined by bank characteristics and vegetation, influence usability.	Many boat-launching sites at public access. Boat-launching also possible at most bridges.
Camping and cabin living	Characteristics favorable to fishing and boating generally also desirable for camping and cabin living.	See descriptions above.
	Moderately high sandy slopes provide good drainage and easy access to river.	Many good campsites on high sandy banks on public lands along river. Developed campsites are adequate for present use.



Base from U. S. Geological Survey Atlas, 1956; Fisher, 1956; Kankakee, 1956

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