

APPENDIX A.3

BAYFIELD COUNTY WATERSHED WETLAND AREAS

Bayfield Peninsula Northwest Watershed

Bark Bay

This large complex of coastal barrier spit, lagoon, springs, and wetlands occupies and embayment between two rocky headlands. The wetlands are extensive and include two major types: coastal fen and coastal bog. Both communities are floristically diverse, in excellent condition, and support many rare species of plants, birds, and butterflies. A large lagoon occupies the center of the site and supports submergent and floating-leaved aquatic plants. A forested interior spit parallel to the coastal barrier spit breaks the wetlands into two major sections. Communities are similar on both sides of the interior spit, but the interior wetlands lack a central lagoon. Other significant features includes a narrow strip of dry pine forest on the coastal spit, springs associated with the mouth of the Bark River on the eastern edge of the site, and small stands of tamarack and tall shrubs. Birds present during the breeding season included bald eagle, merlin, northern harrier, yellow rail, sandhill crane, Brewer's blackbird, and American bittern.

This site is a protection priority as its wetlands are extensive, in excellent condition and support many rare, uncommon, and representative species. The unnamed inlet stream on the west side of the site is bordered by several large clones of the invasive giant reed grass (*Phragmites australis*). This species should be monitored and controlled if necessary. A broader view of the local watershed and its land uses would improve assessment and protection.

Lost Creek Wetlands

This estuarine complex is at the drowned mouths of three small creeks, just south of Lake Superior. A forested coastal barrier spit separates the site from the lake. Sandstone headlands flank the sandspit and estuary to the east and west. The major communities within the site are coastal fen, coastal bog, and shrub swamp. The lagoon at the junction of the creeks contains significant stands of emergent, submergent, and floating-leaved aquatic plants. A mature dry forest of pine and spruce occurs at the sandspit, upon which a number of cabins and an access road have been built. The eastern end of the complex is forested with a shrubby second-growth stand of white cedar and black ash. Resident birds include merlin, sedge wren, and yellow-bellied flycatcher.

The fen community is well developed on the west and north sides of the lagoon. The mat is composed of woolly and livid sedges, buckbean, sweet gale, and cotton grass. Boggier areas with more firmly grounded peat moss are composed of Sphagnum, heath-like shrubs, and sedges. Community boundaries are quite indistinct here. The emergent marsh includes lake sedge, water arum, marsh cinquefoil, and broad-leaved cattail. Among floating-leaved plants are bur-reed, water milfoils, yellow water lily, common bladderwort, water marigold, and pondweeds.

Though not a large site, rare plants, birds, and butterflies are present. Among the rarities is one of only two established populations in Wisconsin of the regionally rare lake cress. A portion of

this site is designated as a State Natural Area, but increasing development of the sandspit adjacent to the wetlands could threaten water quality and make the area unsuitable for sensitive species. Increased powerboat traffic in the lagoon could damage the aquatic beds and lead to the inadvertent introduction of invasive species. Promoting this site's values with local residents should be a priority for those with stewardship responsibilities.

About 225 acres are identified as special use area in the Bayfield County Ten-Year Forest Management Plan and future management will stress old-growth appearance, river water quality, aesthetics, and minimal impacts.

Port Wing Wetlands

This large complex of wetlands, forested sand ridges, beach, and open dune occurs at the mouth of the Flag River adjacent to the unincorporated area of Port Wing. A large slough, Bibon Lake, occurs within the southwestern portion of the site. Significant communities include coastal fen, coastal bog, lake dune, tamarack swamp, and several stands of dry pine forest with a strong boreal flavor. Overall quality of the natural communities is good to excellent. This site includes the state's only known population of fly honeysuckle.

The fen community consists of a floating mat of sedges, dominated by woolly sedge. The coastal bog fringes the margins of the uplands, with a mat of Sphagnum mosses, ericaceous (heath-like) shrubs, and sedges. It contains a number of species not typically found in this kind of bog, such as buckbean, mud sedge, white and sooty beak-rushes, livid sedge, and speckled alder. Small tamarack are scattered unevenly throughout the community. The tamarack swamp consists of three stands, each with an even-aged canopy of mature tamarack, a dense tall shrub layer of speckled alder, and a diverse low shrub/herb/bryophyte flora. The sandspits and ridges are forested with a mixture of red pine, white pine, black spruce, and balsam fir. The stands east of the Flag River are in or approaching old growth condition. Along the Lake Superior shore, dune and beach communities occur.

Sand Bay

A complex of wetlands separated from Lake Superior by a forested sandspit borders the drowned mouth of the Sand River. The lower portions of the stream are bordered by northern sedge meadow and alder thicket. West of the lagoon at the stream's outlet are several spring runs. East of the lagoon is a peatland with coastal fen, coastal bog, and tamarack swamp. Ownership is mostly by the National Park Service. The Red Cliff Band of Lake Superior Chippewa hold title to the forested spit west of the river mouth. Rocky headlands with significant outcroppings of sandstone cliffs occur on either side of Sand Bay.

Most of the watershed is forested and undeveloped. Most of the open peatland is a coastal bog composed of Sphagnum mosses, heath-like shrubs, sedges, and insectivorous plants. A very wet mat within the sphagnum community between the sandspit and tamarack swamp is composed mostly of woolly sedge with very low moss cover. The tamarack swamp is composed of small trees over a dense layer of speckled alder.

Sultz Swamp

This acid peatland occupies a depression high on the Bayfield Peninsula about six miles inland from the Lake Superior coast. Although there are other, similar wetlands in this part of the

basin, Sultz Swamp is the largest and embedded within vast stretches of county-owned forest. The major features of this insular peatland include mature forest of black spruce and extensive muskeg/open bog and large populations of several rare species. Disturbances to the interior of the site have been minimal, with the exception of a maintained power line corridor that crosses the area east-west. White cedar logs were removed from the margins of the wetland in the distant past.

Underneath its closed canopy, the spruce forest is very open and park-like. Canopy gaps are filled with thickets of young black spruce or tamarack.

Where peat has accumulated and forms a deep, hummocky layer of sphagnum, the spruce and tamarack become scattered and often stunted. Heath-like shrubs dominate the understory. Dense patches of blueberries possibly provide evidence of past fire, as does gnarly jack pine among the stunted spruces. Of special interest is a large population of Michaux's sedge, a Wisconsin threatened plant. Among resident birds are the solitary vireo, yellow-bellied flycatcher, ruby-crowned kinglet, Lincoln's sparrow, and palm warbler. Large numbers of white-winged crossbills were noted in 1996, but breeding couldn't be confirmed.

Sultz Swamp is county-owned and designated a wild area in the Bayfield County Ten-Year Forest Management Plan, with the intent that it is allowed to return to a natural state with as little management as possible. This plan says motor vehicle travel will be limited to maintenance and winter snowmobiles only. Managers should work with the utility responsible for maintaining the power line corridor to ensure that introduction of invasive species is avoided and that no harmful chemicals are used in keeping the corridor open.

Bark River

The Bark River is a medium-sized spring-fed trout stream that flows north into Bark Bay. The entire river supports reproducing trout, including many migratory runs from Lake Superior, and has been classified as an outstanding resource water. Stream bottom types vary, with the lower reaches mostly sand, gravel, and clay, while the upper reaches consist of mixed sand, gravel, and boulders. The upper reaches have a steep gradient through a ravine. Large amounts of debris have accumulated along this portion of the stream, which, if large and woody, may enhance habitat. The area supports nesting and migratory waterfowl. One characteristic of the river is extensive wetlands about 2.5 miles from the lake. The river flows through an area of cedar and white pine. The Lake Superior Binational Program identified this river as important to the integrity of the Lake Superior ecosystem for rare communities.

The river empties into Bark Bay, which is bounded by Roman Point to the east and Bark Point to the west. Bark Bay has a beach dunes landscape, with extensive coastal wetlands that feature a bog. The bay supports submergent vegetation. The extensive wetlands provide high quality habitat for wading birds and waterfowl. Shorebirds use the shoreline. The inland fishery in the wetland and lagoon area is a varied community of primarily warm water fish species. Spawning migratory rainbow trout use this area and the Bark River. The near shore waters of Lake Superior provide spawning habitat for both lake trout and lake whitefish. This area is subject to some development. Several cabins have been built on long, narrow sandspit that separates the lagoons from the lake. The land in the area is in both state (Bark Bay Natural Area) and private ownership. The Lake Superior Binational Program has identified this area as important to the

integrity of the Lake Superior ecosystem for coastal wetlands, rare communities, rare habitat, habitat unique to the Great Lakes, and fish and wildlife spawning and nursery grounds. The coastal wetland evaluation identified Bark Bay as a priority wetland site.

Cranberry River

The Cranberry River, which drains about 27 square miles, forms a lagoon area where it meets Lake Superior. The lower reach of the river forms a coastal wetland. The lagoon and lower reach support a varied fishery of warm water species and trout and salmon. Shiners and northern pike use the area for spawning. The Cranberry River is an important stream for fish as it is used for spawning by resident brook trout and by migratory brown and rainbow trout and coho salmon. This area is considered by the Lake Superior Binational Program to be important to the integrity of the Lake Superior ecosystem for coastal wetlands, vital functions for planning objectives and fish and wildlife spawning and nursery grounds. The Cranberry River is part of the State of Wisconsin South Shore Fish and Wildlife Area. The mouth is bordered by land in state ownership and by the Town of Herbster. Farther upstream, the river flows primarily through state-owned land.

South of the state fishery lie the headwaters and springs that feed the Cranberry River. This area is county forestland and lies some distance from Lake Superior. To maintain ecosystem integrity, it's important to eliminate threats to such headwater areas. While the headwaters lie in county-owned land, a section of the river below the headwaters and above the state fishery area (which extends some three miles upriver from the lake) flows through private land. Migratory fowl use the area. The Cranberry River has been classified as an outstanding resource water.

East Fork Cranberry River and Unnamed Tributary

The East Fork Cranberry River is the major tributary to the Cranberry River and accounts for the majority of the flow in the Cranberry River. This entire stream is considered Class I trout waters and supports migratory trout runs from Lake Superior. This stream drains relatively wild land and the streambed is primarily sand and gravel and boulders.

This sand and gravel-bottomed tributary is popular with migratory trout for spawning. The majority of the stream bank vegetation is tag alder. Abundant in-stream cover occurs in the form of rocks, logs, deep pools, and undercut banks.

Flag River

This moderately large stream with a spring water source drains about 32 square miles of land. The stream was named for the large quantity of blue flag, a species of emergent vegetation in the sloughs at the mouth of the stream. The Flag River is considered an excellent trout stream and sports runs of migratory trout from Lake Superior. The outstanding resource waters list identifies this stream as an outstanding resource water south of the town road at T50N R8W S27. The middle nine miles are Class I trout waters. In the 1960s, numerous stream improvement devices were installed in sections 27 and 28 to provide pools and reduce erosion. In addition, a 500-foot long sheet revetment was installed at the mouth to keep the outlet open and provide freer movement for migratory trout. The river drains areas of mixed hardwood and pine forest that experience periodic clear-cutting and are crossed by sand access roads.

WDNR's Port Wing Natural Area near the mouth of the river protects boreal forest and sloughs, portions of a natural sand beach and rocky headlands. The Flag River State Fishery Area surrounds Bibon Lake and numerous sloughs and wetlands and along the Lake Superior shoreline are unique landforms consisting of old beach ridges which support a beach community of plants. These ridges help contain coastal wetlands that extend several miles east from the river mouth along the Lake Superior shore. On the western shore, the fishery area provides an important habitat for shorebirds. Quarry Point is a scenic area of red sandstone cliffs and a historic quarry site, as well as sand beaches.

The lower reaches of the Flag River and its associated wetlands and shoreline complex provide important habitat for numerous species of waterfowl. The area also supports a rich fishery including brook, brown, and rainbow trout and shiners, as well as pumpkinseed, round whitefish, splake, burbot, stickleback, and yellow bullhead. Rainbow trout and coho salmon use the river for spawning.

The Lake Superior Binational Program identified habitat values important to the Lake Superior ecosystem in the Flag River Fishery Area and Port Wing Natural Area, including coastal wetlands, rare communities, rare habitat, vital functions for planning objectives, habitat for migratory wildlife and fish and wildlife spawning and nursery grounds. The coastal wetlands evaluation identified the wetland complexes around the mouth of the river as priority wetlands (see discussion under Port Wing, above.)

East Fork Flag River

This entire stream drains relatively wild land. It derives its flow primarily from an unnamed feeder and numerous springs in the stream and its banks. Brook brown and rainbow trout are present and the stream hosts migratory runs of trout from Lake Superior. Most of the bank vegetation is upland or swamp hardwoods. The river drains areas of mixed hardwood and pine forest that experience periodic clear-cutting and are crossed by sand access roads. This river has been designated an exceptional resource water.

Lenawee Creek

This small trout stream flows some four miles from Lenawee Lake to where it joins the East Fork of the Cranberry River. The upper reaches of the stream do not support enough flow to serve as trout waters but do serve as a trout nursery. At the boundary to the lower reach, springs augment the flow and the stream is littered with boulders, fallen logs, and debris that, along with undercut banks, provide abundant in-stream cover. The lower mile of stream is designated outstanding resource water. About half of the stream's length falls within the Chequamegon National Forest. The upland hardwoods in the watershed are periodically clear-cut and sometimes crossed by logging access roads.

Lost Creeks Numbers 1, 2, and 3

These three streams empty into sloughs that drain into Lake Superior's Siskiwit Bay. Lost Creek No. 1 just south of Cornucopia near County Highway C, is a small, spring-fed stream considered a Class II brook trout stream that also supports migratory runs. It is shallow, sandy and has little in-stream cover.

Lost Creek No. 2 is similar to Lost Creek No. 1. It, too, is a Class II brook trout water. Unlike Nos. 1 and 2, Lost Creek No. 3 is a warm water drainage stream subject to wide fluctuations in water levels and turbid water conditions are common. The creek supports only minnows.

The three streams join at the Lost Creek Natural Area at the western end of Siskiwit Bay. This is an extensive coastal wetland that provides habitat for unique plants, shorebirds, and fish. The estuary and surrounding wetlands of the three creeks provide important habitat for lake cress, a plant considered endangered in Wisconsin. The estuary provides spawning habitat for northern pike and supports several species of forage fish. The lower reaches of these three creeks are in a combination of state and private ownership. There has been development along the Siskiwit Bay shoreline that shelters the wetland. The Lake Superior Binational Program identified this area as important to the integrity of the Lake Superior ecosystem for coastal wetlands, fish and wildlife spawning and nursery grounds, and threatened or endangered species habitat.

Racket Creek

This stream is described in Surface Waters of Bayfield County as a spring-fed stream capable of supporting a Class III brown trout fishery. Its sand and gravel bottom provides a fair spawning area. It is not, however, listed in Wisconsin Trout Streams and is thus not classified as trout water. The stream runs through county forestland that may periodically be subjected to clear cutting and logging traffic. Sand and gravel operations exist in the watershed.

Sand River

This river flows north off the Bayfield Peninsula Ridge into Sand Bay on Lake Superior, moving large amounts of clay and sand that have formed a bar out toward Sand Island. Sampling conducted in the early 1980s by the U.S. Geological Survey measured discharges as high as 5,000 tons per day of suspended sediment and 192 tons per day of dissolved solids. In its uppermost reaches, it flows through an extensive wetland area where beaver are common. The upper 70 percent of the river is intermittent. Many small bottom springs and spring streamlets flow into the Sand River about four miles south of its mouth. These are largely responsible for the lower four miles being able to support trout. Brook trout are common in this lower reach, and migratory runs from Lake Superior occur.

This river is periodically subjected to destructive flash floods. Flood stages as high as 12 feet above normal have been recorded. The floods scour most in-stream cover. The upstream reaches are primarily upland hardwood that may periodically be subjected to clear cutting and logging traffic, while the lower reaches are bordered by dense stands of willow.

The Sand River forms a small estuary where it enters Lake Superior, resulting in an area of coastal wetlands that provides good fish habitat. This portion of the Lake Superior Shoreline in Sand Bay is part of the Apostle Island National Lakeshore. The coastal wetlands evaluation identified Sand Bay as the site of priority wetlands. The river itself, besides supporting trout, provides habitat for several warm water species of game and forage fish. The lower portion of the river flows through the Red Cliff Indian Reservation, while the upper parts are mostly county forest. The headwaters areas are privately owned.

This stream was identified in the coastal wetlands evaluation as an aquatic priority site. While the headwaters are near the Bayfield Sand Barrens subsection, and may be influenced by the area, the stream is contained within the Lake Superior Clay Plain subsection.

Unnamed Tributary to Sand Bay (T51N R4W S6)

This stream is listed in Wisconsin Trout Streams as supporting a Class I brook and rainbow trout fishery and supporting migratory runs of these species. The stream is classified as an exceptional resource water.

Saxine Creek and Unnamed Tributary (T51N R5W S19)

This small spring-fed stream empties into Mawikwe Bay on Lake Superior. From the mouth of Saxine Creek to the east is the Apostle Islands National Lakeshore. This stream is considered an exceptional resource water for its Class I brook and rainbow trout fishery. It also supports migratory runs of fish from Lake Superior. This is primarily a nursery for rainbow trout, with the young living in the stream for two years before migrating to the lake to mature and then returning to spawn. The stream bottom is mostly sand, with occasional gravel areas used for spawning. Vegetation is primarily upland hardwood. The mouth of this stream is considered important Lake Superior habitat for coastal wetlands.

Siskiwit River and Siskiwit Bay Tributary

The Siskiwit River originates in Siskiwit Lake and flows through Little Siskiwit Lake, before emptying into Siskiwit Bay on Lake Superior. From the outlet of Siskiwit Lake downstream to Siskiwit Springs in T50N R6W S24, high temperatures, acid pH, and dark brown color characterize the water quality. This river reach supports primarily forage species. From the springs, water quality improves and allows trout survival. For the five-mile stretch from the springs to Siskiwit Falls, the river is classified as Class I trout water for brook, brown, and rainbow trout. This segment of river is also considered an exceptional resource water. Below the falls to the mouth, the stream is Class II trout water because of its lack of gravel spawning areas. Rainbow and brown trout and chinook and coho salmon migrate from the lake to spawn. The river also supports spawning northern pike, bullheads, suckers, and spottail shiners.

At the mouth of the river, Cornucopia Harbor provides a mooring and docking area for commercial and sport fishing operations and private recreation. A pier juts out from the mouth forming a sheltered beach area.

Siskiwit Bay is bounded by Mawikwe Point (formerly Squaw Point) to the east and Roman Point to the west. The bay is a spawning area for lake whitefish. Shorebirds use the sand beaches of the bay. The mouth of the river, the bay shoreline, and Roman Point are in private ownership. Upstream areas of the Siskiwit River are in county forest and private ownership. The Lake Superior Binational Program identified Siskiwit Bay and the river as important to the integrity of the Lake Superior ecosystem for fish and wildlife spawning and nursery grounds.

A tributary to Siskiwit Bay entering the lake at T51N R6W S34 has been designated an exceptional resource water. This stream is listed as a Class I trout stream for brook trout in Wisconsin Trout Streams.

Mawikwe Creek (formerly Squaw Creek)

This small, cold water stream is considered an exceptional resource water. It supports a Class I brook and rainbow trout fishery. Because of the steep gradient, the stream experiences frequent damage to in-stream cover during heavy rain. This has resulted in the formation of a characteristic terraced pool effect along its entire length. During low flow periods, trout can become temporarily isolated in these small pools. The terracing apparently has no effect during high water periods. The trout in the stream are lake-run fish. Wisconsin Trout Streams lists a tributary to Mawikwe Creek as a Class III trout fishery.

The Lake Superior Binational Program identified the mouth of this stream as important to the integrity of the Lake Superior ecosystem for coastal wetlands.

Bayfield Peninsula Southeast Watershed

Bayview Beach - Sioux River Slough

The wetland complex at the Sioux River mouth includes emergent marsh and alder thicket communities. North of the river mouth is a narrow, mile-long, peaty swale between two parallel sandspits. Major swale communities are an acid coastal bog and wet coastal fen. The beach ridges are forested with white and red pine. Many rare plants and animals occur at the site. Use by migratory birds can be significant, especially in the spring. A large cliff swallow colony with about 100 active nests is present under the State Highway 13 Bridge across the Sioux River.

The coastal bog is composed of *Sphagnum* mosses, heath-like shrubs and sedges, with scattered small tamarack, plus species such as speckled alder, royal fern, and bog willow. Wetter portions of the swale support a mat of wooly sedge with buckbean, sweet gale, and water horsetail. The emergent marsh at the Sioux River mouth consists of bur-reed, soft-stemmed bulrush, cattails, lake sedge, and water arum.

Threats include the spread of giant reed grass and purple loosestrife, disruption of hydrology and water chemistry, over use by recreationists, and maintenance of activities on Highway 13. Planning by the various agencies and municipalities should provide for periodic monitoring of water quality and both rare and invasive plant species.

Sioux River

This high quality stream originates from springs in the Chequamegon National Forest in the Town of Barksdale and flows through the Town of Washburn to empty into Lake Superior in the Sioux River Slough in Bayview. The entire river is an outstanding resource water and several high quality trout streams are tributary to it. The entire river is a Class I fishery in Bayview, but past water quality evaluations have detected the downstream areas carrying a light load of suspended clay particles. The river and its wetlands provide excellent habitat for nesting and migratory waterfowl and furbearers. A unique feature of the river is Big Rock Hole, where a deep hole has been delved below a wide flat layer of bedrock. Bayfield County maintains a wayside park with camping facilities at Big Rock. Wisconsin DNR has, through easements, set up a public fishing grounds along three-quarters of a mile of the Sioux River. The mouth and estuary are in state ownership, while the river flows through a combination of state and privately held lands. The watershed in Bayview supports agriculture and forestry among its activities.

The Sioux River enters Lake Superior through extensive wetlands. This area has a beach and sandstone cliffs that support unique plants. The wetland estuary complex also features a shoreline bog. The estuary connects with the Onion River to the north. The Lake Superior Binational Program identified this area as important to the integrity of the Lake Superior ecosystem for coastal wetlands, rare communities, vital functions for planning objectives, and fish and wildlife spawning and nursery grounds. The Sioux River was also identified by the Lake Superior Coastal Wetland Evaluation as an aquatic priority site. The fauna is diverse with 35 taxa present, four of which are rare. Management concerns noted included turbidity, low flow, filamentous algae, silt, and purple loosestrife.

Onion River

The Onion River is a high quality spring-fed trout stream that flows into Lake Superior in Bayview at a small coastal estuary connect to the Sioux River wetland complex. Wetlands fringe the lower reaches of the river, an area primarily privately owned. This stream supports a Class I trout fishery and is classified as outstanding resource water. A number of spawning trout and salmon species use the river, including brook, brown, and rainbow trout and pink and coho salmon. The Lake Superior Binational Program has identified this river and its estuary as important to the integrity of the Lake Superior ecosystem for coastal wetlands, vital functions for planning objectives, and fish and wildlife spawning and nursery grounds. The Bayfield County Ten-Year Forest Management Plan places the Bayview portion of the watershed in a “wild river” category, thereby making the primary management concern that of maintaining the river’s water quality.

Red Cliff Reservation

The Reservation of the Red Cliff Band of Lake Superior Chippewa occupies the northeastern margin of the Bayfield Peninsula.

Among the outstanding features within the reservation boundary, several are especially important. These include two undisturbed wetland complexes containing coastal fen, coastal bog, northern sedge meadow, lagoon, and dry pine forest. Each of these sites harbors a diverse flora with significant populations of rare plants.

Wave-sprayed sandstone cliffs and ledges are prominent characteristic features of the northern Bayfield Peninsula. Some of the most extensive and ecologically significant outcroppings occur within the reservation. These sites are inhabited by a number of rare plants, most of which are habitat specialists and do not grow in other habitats.

Also of regional significance are the mature stands of hemlock-hardwoods. Most stands have been severely altered due to repeated and intensive logging. Many stands have entirely lost their complement of native conifers, as well as their structural diversity. A number of uncommon and/or geographically restricted plants, several of them of special concern in Wisconsin, occur primarily in these mature stands, especially when associated with deep ravines. The Red Cliff Reservation and Apostle Islands National Lakeshore presently maintain the majority of the older hemlock-hardwoods forest remaining in the region. Such stands include species absent from this forest type in other regions, such as white spruce, white cedar, white pine, showy mountain ash, and thimbleberry. Future analysis may indicate that the Lake Superior hemlock-hardwoods warrant recognition as distinct natural communities or, at least, as important regional variants.

Fish Creek Watershed

Fish Creek Sloughs

The drowned mouth of Fish Creek and its associated wetlands occupy the head of Chequamegon Bay. The site on the outskirts of the City of Ashland, crossed by U.S. Highway 2, has been subjected to many disturbances in the past and remains vulnerable to further deterioration unless efforts to address problems are maintained. The primary wetland communities are emergent marsh, shrub swamp, and hardwood swamp. The open waters of the sloughs also constitute an important feature. This wetland is particularly dynamic due to the funnel shape of Chequamegon Bay and the seiche activity that causes frequent and sometimes substantial short-term water level changes.

The emergent marsh of bulrushes, sedges, cattails, bur-reed, and arrowheads occupies several hundred acres close to the creek mouth. Beds of submergent and floating-leaved aquatic plants such as coontail, waterweed, yellow water lily, and pondweed occur in the open waters of the sloughs and intermingle with the emergents where conditions are suitable. Forked duckweed is abundant in backwaters protected from currents. The exotic and aggressive purple loosestrife is still widespread, but its presence appears considerably diminished following several years of control efforts.

The marsh grades into a shrub swamp of speckled alder and willow to the south. The shrub swamp gives way to an extensive forest of swamp hardwoods composed of black ash, green ash, and box elder.

In the shallow waters of the bay, just north of the mouth of Fish Creek, flats of sand and mud are exposed when the water level is low. Waterfowl, gulls, terns, and shorebirds heavily use these areas as loafing or feeding sites. Several uncommon birds have been documented during the breeding season in the marsh and sloughs, including American bittern and redbreasted merganser. A colony of cliff swallows occurs underneath the U.S. Highway 2 Bridge. The site hosts large numbers of waterfowl in the spring, especially noticeable when the bay waters are still locked in ice. Ducks, geese, swans, gulls, grebes, terns, and herons are among the groups finding suitable resting and feeding areas here when such amenities are scarce in the region.

Efforts to maintain the functional values of the site should be continued. Fish Creek Sloughs continue to have high importance and fish and wildlife habitat. Purple loosestrife control is critical here as bay currents and several wildlife species could serve as agents of seed dispersal, affecting other valuable wetlands in the bay ecosystem.

North Fish Creek, Fish Creek Slough

North Fish Creek

North Fish Creek is part of the South Shore Fish and Wildlife Area, a WDNR land acquisition and management project with a goal of purchasing 4,258 acres from willing sellers in this watershed, encompassing North Fish Creek, Pine Creek, Little Pine Creek, Lake Louise, and Fish Creek Slough. This stream has one of the few self-sustaining migratory trout and salmon runs in the state but is threatened by land use practices in the watershed, primarily extensive agriculture, road construction and maintenance, potential logging activities and other site development. Fisheries managers report a declining fishery over the last 20 years; this fishery is

thought to have contributed up to 15 percent of the total migratory fishery in Wisconsin waters of Lake Superior through its production of rainbow and brown trout, coho salmon, and northern pike. Fish Creek and its tributaries account for 20 percent of the state's self-sustaining migratory fisheries; a recent survey estimated that 47,000 one-year-old migratory trout and young-of-year coho salmon are presently produced in the river system.

This watershed supports a diverse population of reptiles and amphibians, including rare wood turtles in the slough areas at the river mouth, as well as white-tailed deer, black bear, beaver, woodcock, and snowshoe hare, and numerous migratory birds.

The 1,100-acre headwaters area for the creek is one of the few remaining examples of true boreal forest in Wisconsin. The upper reach of North Fish Creek flows through a severely eroded channel with steep gradient; narrow valley; and large, highly erodible bluffs with abundant springs in a reach dominated by boulders, cobble, gravel, and sand bottom. A widening floodplain and valley characterize the middle reach, where the stream bottom becomes more sand and occasional gravel. The lower eight miles is characterized by low gradient, a wide valley, and predominately sand with minor gravel.

The creek drains mostly red clay and sand soils; the clay component of this soil type allows little water to be absorbed. The majority of erosion in North Fish Creek is attributed to ten steep, eroding bluffs along the main stem above the confluence with Pine Creek. These bluffs contribute about 15,000 tons of sediment per year. The bluffs contain about 50 percent sand-sized particles.

This stream has had a history of devastating floods that almost strangled the stream course and left raw banks and debris that periodically slide into the stream. Most of the stream bank pastureland is unfenced. In areas, the stream bottom consists of shifting sands. In places, banks have become exposed sand and gravel washes. Farming in the watershed increases the potential for flooding, since rain falls directly on the impermeable clay soils rather than being absorbed in the undergrowth of forested areas or diffused by the canopy. In addition, snowmelt occurs more rapidly in areas lacking forest cover. Climax woody species such as firs, pines, and maple provide the best erosion control due to stronger root systems, full canopy, and the relationship between these tree types and soil moisture.

The annual sediment load carried by North Fish Creek in 1990, taken from a station in the lower nine miles, was 20,690 tons; in 1991 the load was 33,100 tons, with most of the load made up of sand-sized particles. Upstream stations registered lower amounts with lower percentages of sand, with the most upstream station measuring only 479 tons as the average annual load with almost all of it transported during snowmelt and rainfall, made up primarily silt and clay particles.

Pine Creek, Little Pine Creek, and an unnamed feeder are trout waters that drain to North Fish Creek. The culvert under Highway 2 at Ino is considered the limit of the trout water portion of North Fish Creek. Past surveys suggested the potential for some trout movement beyond this point. An upper tributary above Highway 2, at T47N R6W S29, supports a Class II trout fishery that could be improved. This tributary is not listed in *Wisconsin Trout Stream Sedimentation in North Fish Creek*

North Fish Creek has been the site of a U.S Geological Survey study to understand the changes over time in sediment transport and biology. The stream drains the geologically young region of sand and clay that typifies much of the Wisconsin coast of Lake Superior. Excessive sedimentation observed in the lower reaches of North Fish Creek is attributed to historic logging, subsequent burning, and conversion of the land to agriculture during European settlement in the late 1800s.

The steep bluffs, as high as 100 feet, that characterize the middle reach of North Fish Creek are composed of sand overlain by clay; thus, where a stream meander meets the toe of the bluffs, the sand is easily eroded and the overlying fine-grained deposits slump into the stream. Since the clear-cutting of the boreal forest from the late 1800s through the turn of the century, the vegetation in the watershed has consisted of hay, pasture, and early successional forests frequently harvested for pulpwood.

It appears that most of the bank erosion in this stream occurs during very large floods. Local anglers recall major changes in the 1940s after extensive flooding and also after the 1986 flood that drastically reduced the fish biomass of neighboring Whittlesey Creek. One mission of the U.S. Geological Survey study is to document changes in flooding patterns from before and after European settlement and clearing of the region.

The sedimentation problem seen today may be the result of land use practices of the distant past, while current land use has improved. Sediment cores indicate that the pre-settlement soils are fine grained, consisting of silt and fine-textured sand, where post-settlement soils are mainly composed of fine-to medium-textured sand. It would appear from some sites that much of the sedimentation occurred by the 1940s and 1950s, with lesser amounts of sediment deposited since then. Based on evidence from past vegetation and the sediment history of the stream, the U.S. Geological Survey concludes:

1. That the long-term sedimentation rate has been episodic, dependent upon infrequent large floods occurring during the late Holocene period and post-settlement.
2. The channel of North Fish Creek appears to be degrading above river mile 11, while downstream of river mile 12 toward the mouth, the channel and flood plain are aggrading (sediment is being deposited at an accelerated rate).
3. Post-settlement sedimentation rates are five to ten times higher than pre-settlement rates, although field evidence and runoff modeling results suggest that the rate has decreased during the last 50 years.
4. The water table appears to be rising along the lower four to five miles of the creek and at the mouth at Fish Creek Slough, possibly consistent with local streambed elevations caused by aggradation and differential isostatic rebound.

Also noteworthy among the survey findings was the relationship between land use and flood degree. Agricultural activity in North Fish Creek peaked in the 1930s, with about 22 percent of the land in crops and 7 percent in pasture; the rest consisted of immature forest and wetland. In 1995, the amount of agricultural land in the basin was similar (34 percent), except that only 3 percent was in cropland and 31 percent in pasture. Runoff modeling of different land use conditions indicated that during peak agricultural activity, floods may have been three times

larger and sediment loads five times larger than during forested pre-settlement conditions. Under present land use, floods may be twice as large and sediment two and a half times larger than during pre-settlement periods.

Fish Creek Slough

The mouth of North Fish Creek empties into a one-mile stretch of river known as Fish Creek, which flows through open marsh known as Fish Creek Slough. Most of the flow comes from North Fish Creek, with South Fish Creek providing largely intermittent drainage. Migratory trout and salmon species pass through this slough on their way to spawning beds in North Fish Creek. In addition, Fish Creek here serves as a nursery area for nearly every variety of fish found in Chequamegon Bay and a spawning area for northern pike. While Fish Creek was once considered a Class I trout fishery, it is now only capable of supporting a Class II trout population due to the excessive sand bedload and absence of large woody debris in the stream.

Shifting sands in the channel bed along the lower eight miles of North Fish Creek limit potential habitat.

This sub-watershed has more agricultural activity than most of the streams in the Bayfield Peninsula area. Most of the watershed is in private ownership.

Fish Creek slough is one of the state's most-favored locations for bird study because of its accessibility. Bird life includes shorebirds, terns, waterfowl, and gulls with up to 271 bird species using this rare coastal wetland. In addition, threatened wood turtles are found in the slough along with some 28 other species of reptiles and amphibians.

Endangered bird species are known to use this area.

Emergent, floating, and submergent vegetation in Chequamegon Bay off the mouth of Fish Creek is an area of significant value to the fishery. Purple loosestrife stands have been a problem, with some 60 to 70 acres of the slough containing large densities of this exotic plant. The Great Lakes Indian Fish and Wildlife Commission has treated stands of loosestrife with some success using herbicides.

A town dump operated in the Fish Creek Sloughs in S36 T48N R5W, serving the Towns of Barksdale and Eileen. The dump was used beginning in about 1953 and appears to have closed in 1968. The site may have been used for some dumping up to 1990. The land is now owned by WDNR as part of the Fish Creek Sloughs Fishery Area. Complaints filed during the dump's operating period reflected citizen concerns about trash blowing into the lake visible on surface waters and shoreline of the bay and Fish Creek, nutrient enrichment along the shore adjacent the dump, open burning and aesthetic considerations. Correspondence with the town reveals the site also was used for disposal of pumped septage. This site, just a few yards inland from Lake Superior, was evaluated under the Environmental Repair Program. A consultant's report in 1991 concluded that the site received household and other domestic wastes including car bodies and appliances and possibly some industrial boiler ash. The site never operated under an engineering plan. Waste was simply spread in the swamp, much of it burned prior to filling, pressed into the wetland muck with earth-moving equipment, then covered; apparently, none of the waste was dumped directly into the slough. The engineering report noted that while the

dump has probably affected the wetland at the mouth of Fish Creek, the overall impact is not devastating. The pressing of the wastes down into wetland organic soils and muck has resulted in waste occurring all the way down to the surface of underlying lean clays. The site covered about an acre, with debris ranging from about three to almost six feet deep, an estimated 16,700 cubic yards of material, most of which rests beneath the on-site water table.

The soils underlying the dump appear to be the natural red clays that have a low permeability, which minimizes vertical migration of water and dissolved contaminants from the dump debris down into groundwater below. It is also a groundwater discharge area. While there are obviously contaminants in the dump, levels of these contaminants have fallen either below the Method Detection Limits or are barely over the Preventive Action Limits for these substances. Tests for volatile organic compounds also reflected low levels of contamination.

The consultants report suggested there is a low risk of contamination from this site because the relief of the dump would prevent ponding and percolating, off-site drainage doesn't appear to be occurring, and vegetation appears to be limiting potential erosion. The consultant does, however, suggest that the existing cover material is sand and silty sand soils that allow water to enter more readily than clay; the gradient toward Lake Superior likely will always exist except when the lake is high; and the investigation was not exhaustive and thus pockets or containers of contaminants may exist that weren't discovered during the assessment. Wilhelm Engineering Company recommended semi-annual monitoring of the site and placement of a clay cap, with or without a slurry wall, to better contain the dump debris.

The Environmental Repair Program has not implemented either monitoring or capping due to the relatively low hazard apparently presented by the site. These monitoring recommendations are included in the proposal for the Fish Creek Fish and Wildlife Area; mitigation was expected to cost between \$52,000 and \$75,000 with annual maintenance of \$2,500.

Unnamed North Fish Creek Tributaries

A small, spring-water stream containing brook, brown, and rainbow trout fully supports a Class I trout fishery and is classified as an outstanding resource water. The stream is described in *Wisconsin Trout Streams* as meeting North Fish Creek in Section 23 of T47N R6W. The stream actually enters at Section 13. The stream's gravel bottom provides a spawning area. Another unnamed tributary at T47N R6W S29 is currently supporting a Class II trout fishery according to the best professional judgment of the area fisheries biologist but has the potential to support a Class I trout fishery if water quality impacts are minimized. The stream experiences impairments as a result of stream bank pasturing, eroding banks, beaver activity, and barnyard runoff.

South Fish Creek

This stream flows through a severely eroded channel and experiences many large floods that destroy bank cover. More than 65 percent of the watershed upstream of mile two is agricultural land, with dairy farming the primary land use. This may be an important contributing factor to erosion in the watershed. This creek is intermittent during dry periods and thus its fishery value is likely poor.

Little Pine Creek and Unnamed Tributary

This tributary to North Fish Creek is a Class I trout stream considered an excellent coho salmon spawning and nursery ground and classified as an outstanding resource water. Lake Louise, a privately owned impoundment with numerous bottom springs, serves as the headwaters of this stream. The sand and gravel stream bottom provide spawning areas for Lake Superior migratory trout and salmon species. This watershed has largely been cleared for agricultural purposes, and the headwaters area includes portions of the Chequamegon National Forest that have the potential for forestry activity. At least 14 springs were counted along an unnamed tributary entering Little Pine Creek in Section 10; the tributary supports a self-sustaining trout population according to the best professional judgment of the fisheries manager. Cattle crossings and grazing stream banks, barnyard runoff, and trampling of the stream bank have degraded portions of this tributary; some gravel areas may become silted due to cattle activity. This tributary has degraded habitat and possible polluted runoff from barnyards.

Pine Creek

This is a major spring feeder stream to North Fish Creek, formed by a number of small spring-fed tributaries that originate on the south edge of the Moquah Barrens. The stream is a high quality Class I trout fishery that includes migratory species of trout and salmon.

The soils in this watershed are the typical red clay and land use is more than 60 percent agricultural, with wooded pasture along stream banks. Creek banks generally lack cover and are damaged by grazing and cattle crossings. Sources of water pollution are primarily barnyards and poor land use practices. The watershed supports abundant white-tailed deer, bear, beaver, mink, and ducks. Topographic maps indicate gravel pits have been excavated in the headwaters area of the stream, which is just outside the bounds of the Chequamegon National Forest. The potential exists for the forested areas of the headwaters to be harvested. The creek was a target of a red clay study that proposed land management projects to limit erosion. The creek served as a northern Wisconsin sample site for studying the occurrence of *Cryptosporidium* and *Giardia* in surface waters.

Unnamed Pine Creek Tributaries

A Pine Creek tributary at T47N R6W S10, flowing from west of Lake Louise between the Pine and Little Pine Creeks is described in *Wisconsin Trout Streams* as supporting a Class I trout fishery and is classified as an outstanding resource water.

According to *Surface Waters of Bayfield County*, brown, rainbow, and brook trout are common in the stream, many of them migratory from Lake Superior. The stream is described as having poor bank cover due to grazing along stream banks.

Whittlesey Creek

A cold water stream with a spring water source, Whittlesey Creek drops 500 feet through eroded valleys into Chequamegon Bay of Lake Superior. The Whittlesey Creek watershed is a geologically young area with soil erosion processes still occurring naturally at a rapid rate. Abnormally heavy rains have periodically accelerated erosion on the exposed red clay soils. Recognition of this severe erosion problem resulted in an extensive study of the entire Whittlesey watershed in 1957. The results from this study have been used for setting standards and developing procedures to be used in preparing land management plans for the entire

northwestern Wisconsin red clay area. The lower mile of this stream is relatively flat and almost the same level as Lake Superior.

Whittlesey Creek begins as two spring fed streamlets in Section 30, T48N, R5W, however, it flows underground for almost 2.50 miles before it finally comes gushing out of the ground again in Section 34, just below where the North Fork joins Whittlesey Creek. Apparently, this spring water flows underground because of severe sedimentation of the previous channel. Whittlesey Creek is considered to be Class I trout water from where the water flow reappears downstream to Lake Superior. Brook, brown, and rainbow trout are all present; however, brown trout are predominant in numbers. The brown and rainbow trout are lake run fish from Lake Superior. The rainbow trout make spawning runs both spring and fall, with the larger run coming in the spring. The brown trout make one spawning run in late summer around the latter part of August. A few waterfowl are found here during spring and fall migrations. Whittlesey Creek was named after Ashland County's first state senator, and the founder of the City of Ashland, Asaph Whittlesey.

Iron River Watershed

Blaine Creek

This small, intermittent drainage feeder to East Fork Iron River has unpredictable flows. Significant habitat quality impacts are likely due to low flows and to a lesser extent from urban pollutant sources and silt.

Dahl Creek

Dahl Creek is a small stream that originates at the outlet of Crystal Lake and flows north into Muskeg Creek. It passes through a tag alder-shrub swamp, but bank springs along its course greatly improve water quality. Sand and gravel make up the bottom, providing fish from Muskeg Creek a good spawning area. The stream passes through one small, unnamed drainage lake with numerous bank springs. The waterbody has been designated an exceptional resource water.

DeChamps Creek

This small, cold-water spring stream originates from DeChamps Creek Springs and flows north into Hill Creek. The stream has a small, gravel-bottomed feeder stream that likely provides the Iron River watershed with an excellent spawning area for native trout. Both brook and brown trout are common in DeChamps Creek. The upper reaches of the stream are 100 percent gravel; while the lower reaches are 100 percent sand. Mixed hardwoods and conifers and pastureland border the stream. The stream is classified as an outstanding resource water.

Unnamed Tributary to DeChamps Creek (T48N R8W S32)

This narrow stream originates from a number of small springs in Section 32. Brook and brown trout use this gravel-bottomed feeder stream for spawning. The stream bank vegetation is upland hardwood, though the watershed has historically been in agriculture. This stream is classified as an outstanding resource water.

Fish Creek

Fish Creek in Orienta Township forms a small estuary with coastal wetlands where it meets Lake Superior. The Lake Superior shoreline adjacent to the river mouth consists of eroding scarps in unconsolidated sediments. The Lake Superior Binational Program identified this stream as important to the integrity of the Lake Superior ecosystem for coastal wetlands. The stream flows through a deep ravine and drains the red clay and nearly level pink sands region of northwest Bayfield County. Because the upper end drains a marshy area, water temperatures are high and water quality poor. Feeder streams improve temperatures in the middle stretch (T48N R10W S13), enabling the stream to support a small, native brook trout population. This favorable stretch extends about two and a half miles downstream before deteriorating. In dry weather, stream flows in this stretch fluctuate widely. Only minnows inhabit the reach, with mudminnows, white suckers, longnose dace, northern creek chubs, and sculpins predominating. Much of the upper reach is bordered by pastured upland and erosion problems have been serious.

Halls Creek

This small drainage stream originates at the outlet of Spider Lake and flows into the Iron River. The stream drains a large tag alder swamp that borders the stream for most of its length. Surveys of the 1960s and 1970s report that trout from the Iron River may move into the lower portion of the stream on occasion.

During survey work conducted as part of the coastal wetlands evaluation, no rare macroinvertebrate species were found and overall taxa richness was moderate (5-24 species). The survey noted that point sources are potential pollutant threat and significant aquatic plants are present.

Hill Creek

This stream originates where Townsend and De Champs creeks meet, then flows northerly into the East Fork of the Iron River. Brook, brown, and an occasional rainbow trout inhabit the stream, which is considered an outstanding resource water. Due to upstream agriculture, Hill Creek is subject to turbid water conditions during heavy runoff. Migratory waterfowl are known to use the stream. It is considered an important Lake Superior habitat as part of the Iron River watershed.

Iron Lake

This 248-acre lake is a hard water drainage lake with a four-foot head overflow dam at the outlet. The lake supports a population of northern pike, largemouth bass, and panfish. The 65 acres of adjoining wetlands provide nesting habitat for waterfowl including teal and loon.

Iron River

This cold-water stream originates in Iron Lake, flows through the Iron River Flowage (Mill Pond Lake) at the Town of Iron River and the Orienta Flowage before emptying into Lake Superior. At one time, the Iron River Sanitary District discharged to the river but now discharges to groundwater via a seepage cell. High quality spring water reaches the river from a number of sources, including Mud Lake. Dahlberg Light and Power Company operated a hydro project on the Iron River at the Iron River Flowage, a 76-acre impoundment formed by a

concrete roller dam with 23-foot head. Power is no longer generated at this project and the Town of Iron River now maintains the flowage.

A 44-foot overflow dam once formed the Orienta Flowage and is now in the process of being abandoned. Northern States Power operated the Orienta Hydro Project until 1985 when the dam washed out for the second time during a heavy storm when the flooding river overtopped the embankments. Dam failure was attributed to a spillway clogged with debris and the inability to reach and open the gates in time. The original dam, built in 1922, washed out in 1946, when the project moved about 60 feet downstream from the original location and with a higher head to give it more generating capacity.

The lower Iron River is fringed with wetlands and supports an exceptional fishery of brook, brown, and rainbow trout; several warm water species; burbot; and lake sturgeon. The upper reach, above the confluence with Muskeg Creek, is considered Class II trout waters. The portion from Muskeg Creek to the Orienta Dam has been considered Class III trout waters.

Portions of the stream run through upland forestlands that may periodically be subjected to clear cutting and logging traffic; other portions flow through regions of agriculture, including dairy operations and pasturing. Sediments found behind the Orienta dam indicate a great deal of sand from the upper watershed, in addition to clay, moves downstream from the watershed. The upper reaches of the stream have mostly sand for bottom types, changing downstream to mostly gravel and clay. Upwelling groundwater creates quicksand holes in the stream bed in places. From the mouth to the Orienta Dam the stream bottom is primarily boulders interspersed with gravel.

East Fork of the Iron River

The East Fork of the Iron River is identified as an outstanding resource water. Portions of the stream run through upland forestlands that may periodically be subjected to clear cutting and logging traffic. In addition to 16 miles of Class I trout stream, an additional 40 miles of high quality trout water are tributary to the East Fork. The Lake Superior Binational Program identified this river as habitat important to the integrity of the Lake Superior ecosystem. The river originates at two spring-fed streamlets before joining the Iron River just south of the Orienta Flowage. The watershed's erodible red clay soils can affect the quality of in-stream cover after heavy rain. The bottom types are mostly made up of sand, gravel, and boulders with an occasional area of silt. The river also provides habitat for nesting and migratory waterfowl.

Middle Creek

The Iron River National Fish Hatchery received approval to add a discharge to this creek. The stream has a fish barrier and a constructed water intake structure and fish barrier in the headwaters that were built in anticipation of expansion of the fish hatchery. This stream supports a Class I trout fishery for its entire length and has been designated an outstanding resource water.

Millpond Lake

Millpond Lake, in the upper reaches of the Iron River watershed, forms a wetland area that supports emergent vegetation and black terns, a rare species. The Lake Superior Binational

Program identified this lake as having habitat important to the integrity of the Lake Superior ecosystem.

Mud Lake

Mud Lake and Millpond Lake are in the upper reaches of the Iron River, which flows through this wetland and bog area. The Lake Superior Binational Program has identified this area as important habitat.

Muskeg Creek

This tributary to the Iron River has a naturally reproducing brook trout population, primarily downstream from where it meets Dahl Creek. Extensive open marsh wetland areas give rise to the stream, and then it flows through a long stretch of agricultural lands. During heavy rain, the stream becomes turbid. The Lake Superior Binational Program identified this stream as habitat important to the integrity of the Lake Superior ecosystem as part of the Iron River watershed.

Reefer Creek

This stream flows through a deep ravine to Lake Superior. Its upper three miles support a self-sustaining trout population, from the headwaters downstream to T49N R9W S32; the creek is Class I trout water and the reach is an exceptional resource water. The remaining 12 miles of stream deteriorates to the point it supports only a forage fishery. The upper part of the watershed has in the past been dominated by dairy farming, which has caused serious erosion problems when cattle are allowed on the stream banks. Water in the lower reach is usually turbid as a result. Where the stream empties into Lake Superior, it forms an estuary. Severe erosion has occurred at the stream mouth. The Lake Superior Binational Program has identified this stream as important to the integrity of the Lake Superior ecosystem for coastal wetlands and fish and wildlife spawning and nursery grounds.

Resch Creek

Little is known about this six-mile long stream. Surveys of the 1960s and 1970s reported that it was an intermittent drainage stream tributary to the Orienta Flowage. Those surveys reported cleared farmland accounted for a small percentage of the otherwise forested watershed.

Schacte Creek

This high-quality trout stream is managed for brown, brook, and rainbow trout. The Iron River National Fish Hatchery discharges effluent to this creek, which also has a fish passage barrier in place. The headwaters of Schacte Creek are sand barrens with springs, identified by the Lake Superior Binational Program as a rare habitat. The stream empties into the East Fork of the Iron River. The stream is considered an above average trout stream, with extensive spring water sources and abundant in-stream cover in the form of undercut banks, large pools, and fallen logs. It has abundant gravel areas and excellent stream flow, making it one of the best spawning streams in the watershed.

Townsend Creek

This Class I trout stream meets DeChamps creek to form Hill Creek and is an outstanding resource water. It supports a reproducing trout population, despite its less favorable spawning areas. Historically, agriculture and especially dairy operations caused considerable erosion due to cattle trampling the stream banks.