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A Family Guide to Minnesota's North Shore



by Nancy Hereid and Dr. Eugene D. Gennaro

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*Cover Photo:
Camping at Park Point*

*Photo left:
French River*

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A Family Guide to Minnesota's North Shore

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The following symbols are used to identify public facilities at (or near) the location where they are available along the North shore.

Key

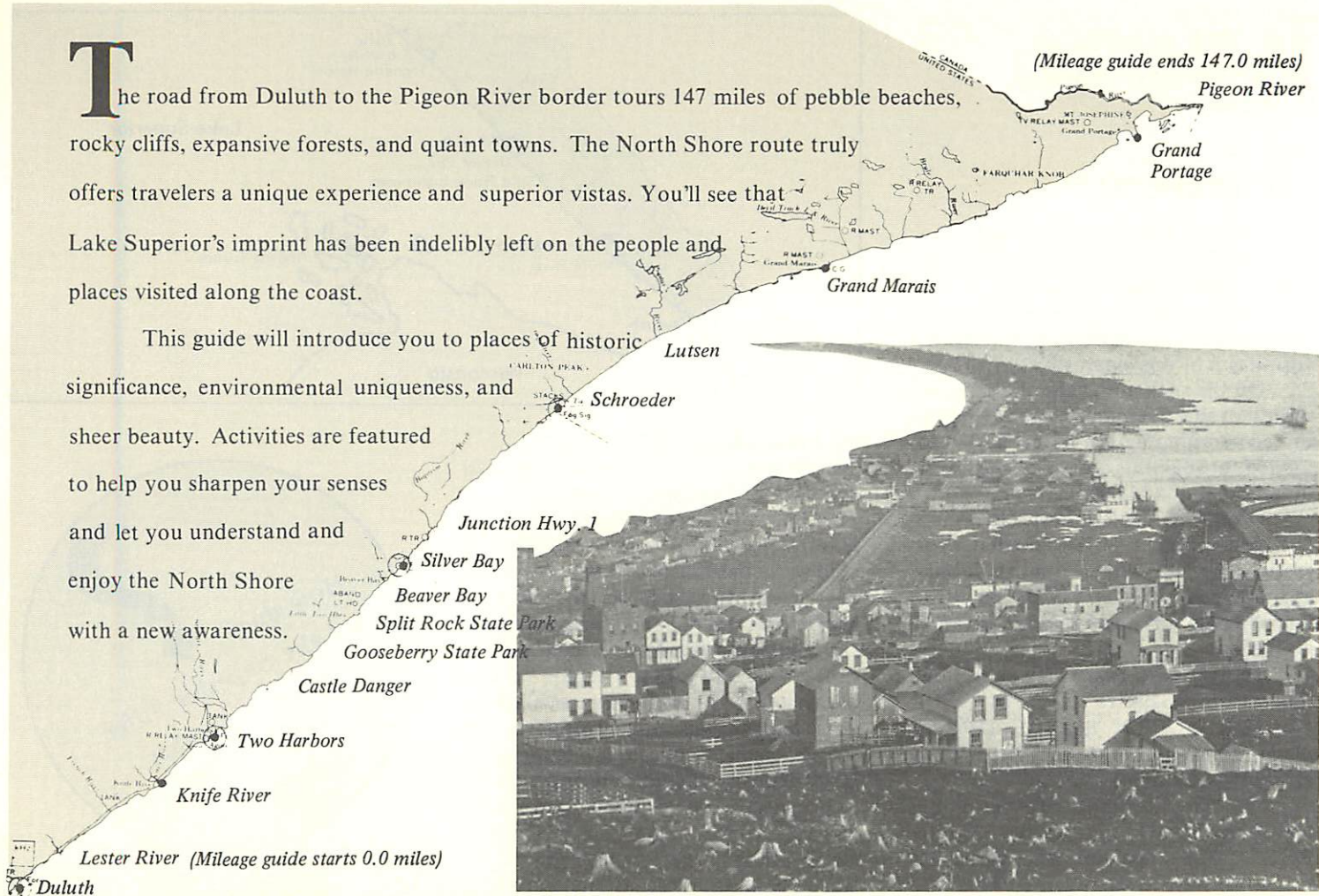
- ① Information centers
- Ⓜ Rest area with toilet facilities
- Ⓣ Picnic tables
- ⓐ Public campgrounds
- ② Hiking trails
- Ⓢ Public boat launches which are paved and free*

Private facilities are not covered by this book. You may find out more about the fine private facilities along the shore by contacting local chambers of commerce, the information centers in Duluth, Two Harbors, and Grand Marais, or associations such as the MN Arrowhead Association, the Tip of the Arrowhead Association, or the Lutsen/Tofte Tourism Association.

*Launches which charge a fee are identified in "*A Boater's Guide to Lake Superior Launch Ramps*."

The road from Duluth to the Pigeon River border tours 147 miles of pebble beaches, rocky cliffs, expansive forests, and quaint towns. The North Shore route truly offers travelers a unique experience and superior vistas. You'll see that Lake Superior's imprint has been indelibly left on the people and places visited along the coast.

This guide will introduce you to places of historic significance, environmental uniqueness, and sheer beauty. Activities are featured to help you sharpen your senses and let you understand and enjoy the North Shore with a new awareness.



(Mileage guide ends 147.0 miles)

Pigeon River

Grand Portage

Grand Marais

Lutsen

Schroeder

Junction Hwy. 1

Silver Bay

Beaver Bay

Split Rock State Park

Gooseberry State Park

Castle Danger

Two Harbors

Knife River

Lester River (Mileage guide starts 0.0 miles)

Park Point from Duluth skyline

LESTER RIVER TO TWO HARBORS

0.0 Lester River ?

The Ojibwa Indians named the river *Busabiki-zibi*, a river that comes through a worn hollow place in the rock.

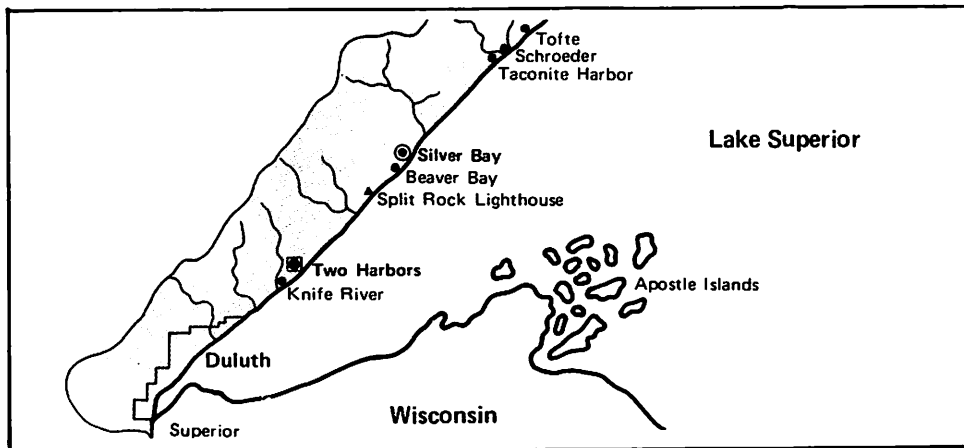
The mouth of the Lester River is a popular spot for smelt fishing during the spring run of this small silvery fish.

On the rock along the shore at the mouth of this river you can see evidence of the scraping action of glaciers that moved through this area in a southwest direction about 14,000 years ago.

One block north of Lester River is a U.S. Government Environmental Protection Agency water quality laboratory—one of only two in the country. Group tours are possible with advance notice.

Shortly past Lester River, follow the turn-off signs to the LAKE SUPERIOR NORTH SHORE DRIVE which follows the shoreline to Two Harbors (note map).

The extensive stands of aspen along the shore from Lester River to Knife River are an indication that this area was once devastated by fire. This occurred in a series of forest fires in 1918.

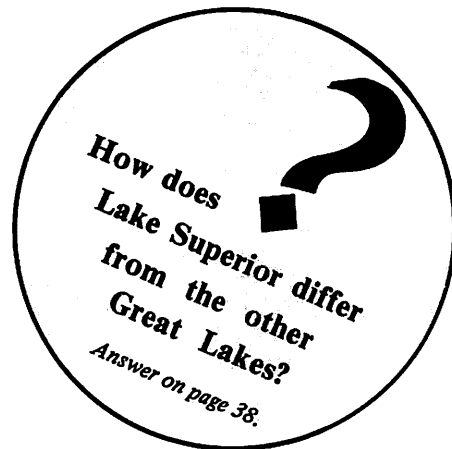


7.0 French River *

The Ojibwa named this river *Angwass-ago-zibi*, or floodwood river.

The Minnesota Department of Natural Resources operates a modern cold water fish hatchery here, incubating eggs from such fish as the herring, sucker and walleye and rearing Atlantic salmon, chinook salmon, steelhead and other strains of rainbow trout. Visitors are welcome 8 a.m. - 4 p.m. weekdays.

Copper was once found in the stream beds of this area. Rumors of large deposits of copper brought scores of prospectors to the North Shore in the 1840s and 1850s. From Lester River to Knife River large amounts of money were spent in futile attempts to find copper deposits worth mining.



Glacial Grooves

Site: Lester River

Try to find the scratches or grooves (not the cracks) on the rock along the shore at the mouth of the Lester River made by glaciers over 10,000 years ago before the lake was formed.

Do the scratches go in the same directions as the shoreline or do they follow the path of the river? Is this rock easy to scratch? Try it. How much force do you think it took to make these scratches?

Imagine you are standing next to a wall of ice higher than a 100 story building. About 14,000 years ago, glaciers thousands of feet thick inched their way through this area in a southwest direction. The powerful force of the moving ice produced the scratches that you see on the rock. As the climate cooled during each of the four ice ages and the ice masses became thicker the ice at the bottom under the heavy load became plastic-like and was squeezed out the sides. At its thickest, the ice was over two miles deep. The glacial ice moved south and covered much of Canada and the northern United States.

It was these glaciers that dug out the Lake Superior basin which later filled with water as the ice melted, thus creating ancient Lake Superior.



12.2 Buchanan

Just over five miles northeast of French River, on the lake side of the road, a historic plaque commemorates this settlement: site of the North Shore's first post office. Platted in 1856, the townsite was named after President Buchanan. The first North Shore newspaper, the *North Shore Advocate*, is said to have been published here in 1857. The townspeople had great hopes for copper mining that never materialized. The town was eventually abandoned and later destroyed by fire.

15.5 Knife River ☞ Ⓡ

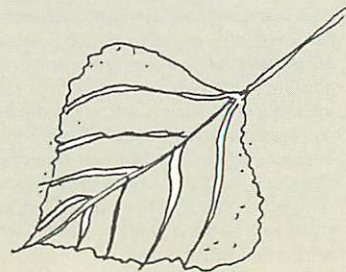
The name comes from an Ojibwa word *Makomani*, which refers to sharp rocks in the river bed.

Knife River is one of the North Shore's most active sport fishing areas. Some commercial fishing also takes place here.

The first white settlers in the 1880s were commercial fishermen. In 1898, a logging operation was built here which remained an active business until 1919.

Until 1929 this area was also the scene of large scale attempts to mine copper, but none of the veins proved commercially useable.

Stands of Aspen (Poplar) or Birch are referred to as "Disturbance Community" by foresters. Both trees begin new growth quickly after an area has been logged or burned. Aspen will start new shoots from its root system. Birch will sprout from a cut or burned stump.



BE SURE TO . . .

1. Try to identify the scratches, or grooves, on the rock along the shore at the mouth of the Lester River which were left by glaciers as they moved through the area about 14,000 years ago.
2. Gather information at the tourist information booth just beyond Lester River.
3. Look for stands of aspen (poplar) along the shore, from Lester River to Knife River.
4. Stop at one of the many marked picnic wayside areas on the lake between Lester River and French River.



Commercial fisherman on North Shore ca. 1940

TWO HARBORS

21.5 Two Harbors

In 1856 the village of Burlington was plotted here and later named Agate Bay. In 1907 the village became the city of Two Harbors.

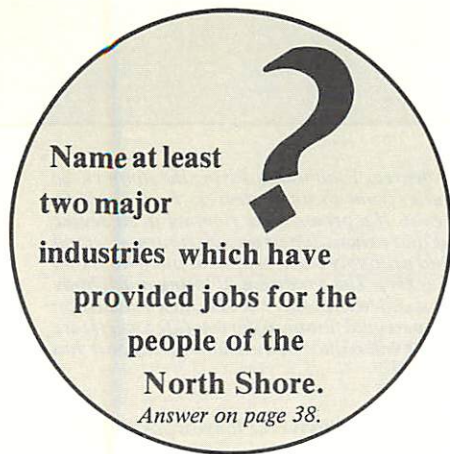
Before 1856 the area around these two bays was a well known Ojibwa hunting and fishing grounds. Imagine how this area must have looked over a hundred years ago when Ojibwa speared fish by torchlight in the shallow waters.

Originally the town was a logging center. With completion of the railway from the town of Tower which is located inland on Minnesota's iron range, Two Harbors became the state's first iron ore port in 1884. For years the iron ore industry was the basis of the town's economic stability.

But by the 1950s, all the high grade iron ore had been taken from the ground. Iron ore is now mined as taconite, a low grade iron-bearing rock that must first be processed and concentrated before it can be used by the steel mills.



The Edna G was the first steam powered tug on the Great Lakes and now retired at Agate Bay.



4. Drive to the boat launch parking area on Agate Bay and visit the lighthouse and walk out onto the breakwall. West of the breakwall lies the Samuel P. Ely, a three-masted schooner. The Ely went down in 1896 and is one of the oldest recorded shipwrecks on Lake Superior. Try your fishing luck for trout and salmon off the breakwall.

5. See the Peter Toth Indian sculpture at the Visitor's Information Center, a gift to the people of Minnesota by the artist in tribute to Native Americans. Inside the information center notice the large size of the logs used to construct this log building.

6. Explore the beach at Burlington Bay and test the temperature of Lake Superior's water.

**Dock #1, located in
Two Harbors' Agate Bay,
was once the largest
iron ore loading dock
in the world.**

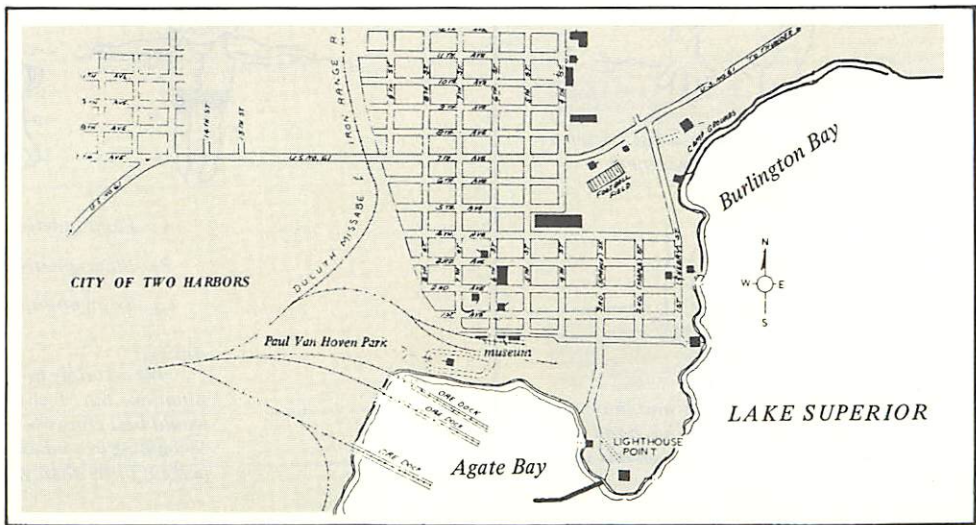
**(Note: The dock
closest to shore in
Agate Bay is Dock #1).**

BE SURE TO . . .

1. Look for the building on the northwest corner of Second Avenue and Waterfront Drive. It housed the original office of the Minnesota Mining and Manufacturing (3M) Company which was organized in Two Harbors in 1902.

2. Visit the Lake County Historical Museum located in the old depot of the Duluth, Mesabi and Iron Range (DM&IR) Railroad. The museum is on Agate Bay. Examine the samples of local gemstones, agate and thomsonite, in case you plan to look for these gemstones on the beaches of the North Shore.

3. View the ore docks in Agate Bay from the observation platform at Paul VanHoven Park. Look for the Edna G, the Great Lakes' first steam powered tug. The Edna G was built in 1896 but is now retired.



Colder in the Lake

Site: Burlington Bay



A). Put both hands into the lake and open them wide.



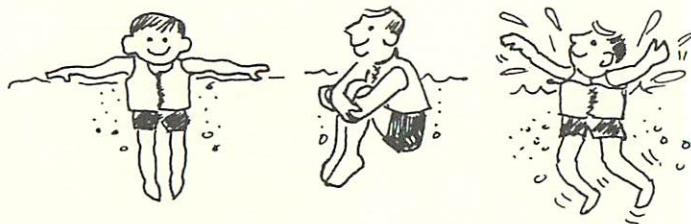
B). Clench one hand into a fist. After a minute, which hand seems warmer?



C). Now open your hand and move it through the water. Does your hand feel colder when it is moving or when it is still?

The average temperature for Lake Superior is 39 degrees F; although during the summer the surface water temperature along the North Shore varies from about 40 degrees F. to about 65 degrees F. No matter what time of year, the lake is cold. If a person were floating in 50 degree water, his/her body would be robbed of its heat so fast that exhaustion or unconsciousness would probably take place in less than one hour; death would probably occur within about 3 hours (in colder water these conditions would happen more quickly). The condition of losing much body heat results in having a lowered body temperature and is called hypothermia. Because exhaustion and loss of muscle control occurs rapidly in cold water, personal flotation devices (life jackets) are essential to survival in the case of accidents. A life jacket will reduce body heat loss, support you and give you more than twice as much time to be rescued.

Based on your experiment, which would be the best way to survive the longest possible time, assuming you are a long way from help?



- A). Float quietly all stretched out.
- B). Float quietly while curled up in a ball.
- C). Swim and splash as vigorously as you can.

Answer:

We certainly hope you never end up in such a situation, but if you are, remember answer (b) would best conserve body heat until help arrives. Swimming in cold water causes you to lose heat 35 percent faster than when holding still.

TWO HARBORS TO CASTLE DANGER

22.5 Flood Bay (R) (A)

This natural harbor offers a panoramic view of the lake and an opportunity to get close to the water on a Lake Superior pebble beach.

26.0 Silver Creek Cliff

Silver Creek is the English translation for *Shonia-sibiwishe*, the Ojibwa name for this area.

Four miles north of Two Harbors, the highway rises to 125 feet above the lake with the bluff rising another 175 feet above the highway. A cut had to be blasted out of the rock of Silver Cliff in 1923 to make way for North Shore's first road. Now, fifty years later, plans are underway to build a new inland stretch of Highway 61 that will bypass Silver Cliff.

28.5 Encampment River

Immediately north of Silver Cliff is the Encampment Forest, 1,500 acres of some of the last remaining stands of white and red pine along the North Shore. No one knows how or why these trees escaped the logger's axes and saws. The forest is now privately owned.

28.7 Lafayette Bluff

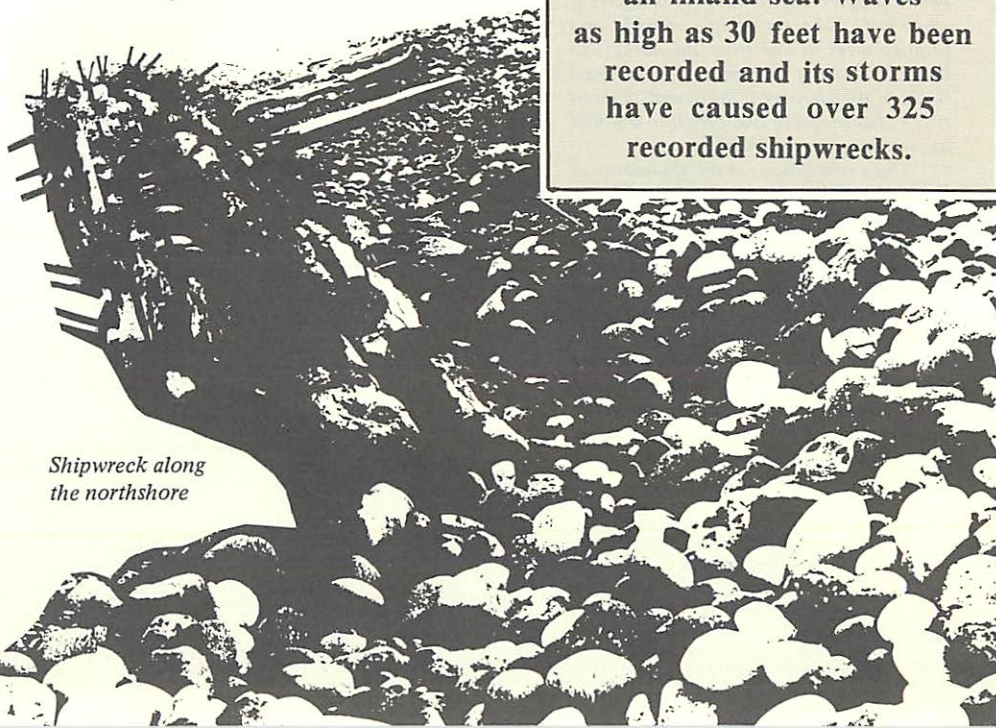
The bluff along the shore as you drive the curve north of milepost 334 is named after a shipwreck. The iron ore freighter Lafayette sank here in 1905 in one of the most violent "noreaster" storms on record. During this three-day storm, the average wind velocity was 43 mph and maintained a speed of 60-64 mph for 13 hours.

This tragic storm emphasized the need for a lighthouse in the area.

32.0 Castle Danger

Once a fishing and logging area, some say this site was named for the castle-like formation along the shore and because it was a dangerous area for ships, others say it was named after the ship Castle which sank here. No evidence of the ship has ever been found.

Lake Superior is considered an inland sea. Waves as high as 30 feet have been recorded and its storms have caused over 325 recorded shipwrecks.



*Shipwreck along
the northshore*

Superior Rocky Towers

Site: Flood Bay

You will probably notice that most of the rocks on Lake Superior beaches are flat. How high and large a structure can you build using these flat rocks? Try to skip a few of the smaller ones on the water.

What is the general color of the rocks on the beaches? Do the rocks look different when wet? Collect a sample of rocks and arrange them in line from the darkest to lightest or from the most to the least reddish. Watch to see if the overall color of rocks changes from one beach to another as you travel up the shore.

One explanation for the abundance of flat rocks is that the very round rocks on the beaches are more likely to be washed, or rolled, into the lake by the waves that often crash onto the beaches. This leaves the flatter rocks behind. Most of the black rocks are basalt, the most common type of volcanic rock. Most of the reddish rocks are rhyolite, a less common volcanic rock which is a type of felsite lava. Although found all along the North Shore, the major outcroppings of rhyolite are found in the palisade area near the Baptism River and just north of Grand Marais.



BE SURE TO . . .

1. Explore the beach at Flood Bay.
2. Look for the large white pines and red pines among the spruce, fir and cedar trees as you pass the Encampment River.
3. On a warm and sunny summer day, look for bears at the Castle Danger Sanitary Landfill, 1.4 miles from the highway.

CASTLE DANGER TO SPLIT ROCK STATE PARK

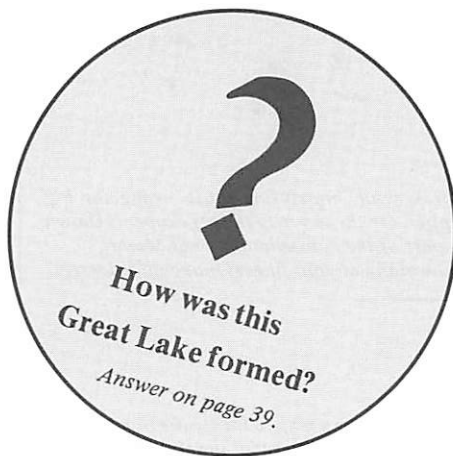
35.0 Gooseberry Falls State Park



In Ojibwa, this river *Shabonimikani-zibe* means place of the gooseberries. The river got its name either for the gooseberry bushes growing wild along its banks or for Grosseilliers, an early explorer of the area whose name in French means gooseberry bush.

Above the highway bridge are two water falls with a total drop of 30 feet. Below the bridge are two falls with a total drop of 75 feet. The park has more than 10 miles of foot trails which wind upstream to a fifth falls, inland into forest areas, and downstream to an agate beach at the mouth of the river.

Available at the park's Interpretive Center is information on the history of the North Shore and excellent field guides to plants and trees, birds, fish and wildlife of the area.



Minnesota's official gemstone, the Lake Superior agate, is in the quartz family and was formed as water streamed through the porous layers of lava and repeatedly lined the pores with colored minerals in concentric bands.

BE SURE TO . . .

1. Check the bulletin board at the Interpretive Center for nature programs.
2. Look for lava ledges from ancient flows and the four and six-sided columns of lava rock near the upper and lower falls.
3. Take the one and one-half mile self-guided Voyageur Nature Tour (leaflet available at the Interpretive Center) which winds upstream past the fifth falls and back through stands of aspen, cedar and spruce.
4. Follow the Lower Rim Trail down to the mouth of the river where you will find picnic grounds and an agate beach.

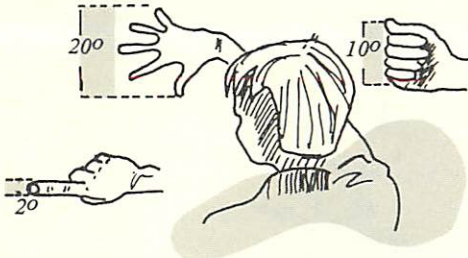


By the Light of a Star

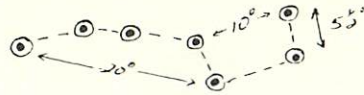
Site: Gooseberry Falls State Park

Try using the night sky as early navigators often did. Determining how far the north star Polaris is from the northern horizon will give you a direct and fairly accurate estimate of your latitude on earth. This is true wherever you might be in the world provided that you are north of the equator. Knowing their position in latitude was very important to early sailors as they tried to keep a steady course on the open seas.

Latitude is measured in degrees north, or south, from the equator; the equator is 0 degrees, the north pole is 90 degrees north, the south pole is 90 degrees south.



You can use your fingers and hands as tools for measuring objects in the night sky. A finger held at arm's length covers about 2 degrees of sky, a fist about 8-10 degrees, and a spread hand is about a 20 degree span. Remember to hold your hand at arm's length. (This technique works equally well for adults and children because their finger width to arm length is proportionally the same).



1. Check your "measuring tools" using the big dipper. On the sky map the big dipper is shown as part of the constellation Ursa Major. How many of your fingers make up 5 degrees?

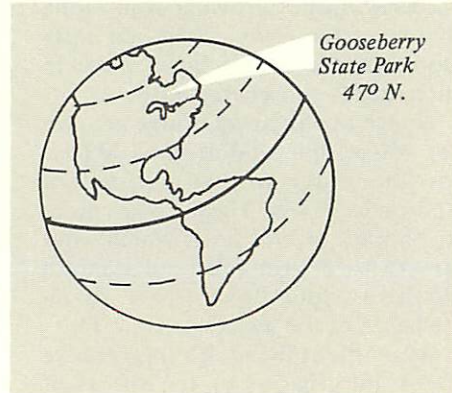
2. Use the night sky map to locate the north star, Polaris, which is the star at the end of the little dipper's handle. Point to the north star then lower your arm to the horizon. You are now pointing true north.

Determine the altitude (number of degrees from the horizon) of Polaris. Finding this angle will give you a fairly accurate estimate of your latitude. (This technique works best when you view northwards over a level horizon).

What is your estimated latitude in degrees north? _____

The latitude of Gooseberry Falls State Park is 47 degrees north. How close was your estimate? The latitude of Grand Portage is 1 degree farther north or 48 degrees. Minneapolis and St. Paul are located 45 degrees north.

3. Measure the distances between some of the brightest stars you see. Using the night sky map, see if any of these bright stars are part of any constellations.







4. Every 24 hours the earth makes one turn, or one 360 degree rotation on its axis (like a spinning top). Therefore, the earth turns 15 degrees every hour.

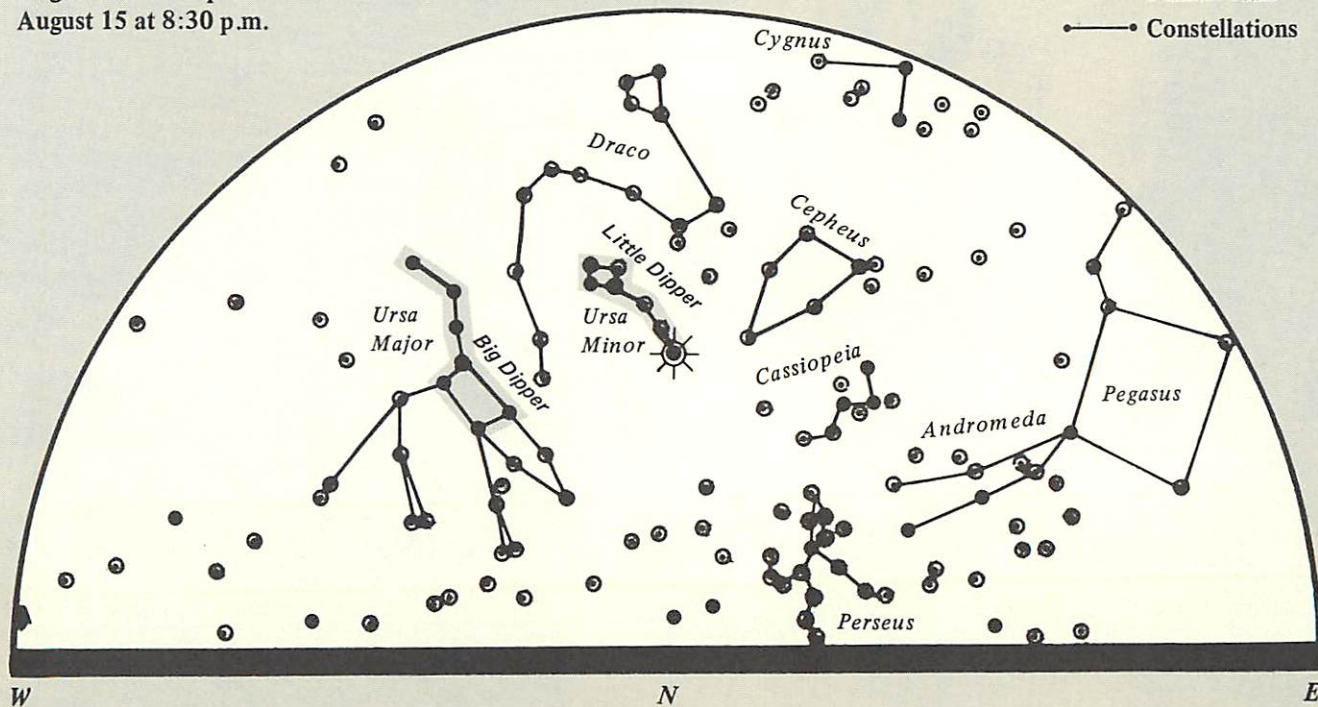
Knowing these facts, you can estimate the time remaining in the late afternoon until sunset. Likewise, you can estimate the time remaining until moonset when the moon is a little ways from the western horizon.

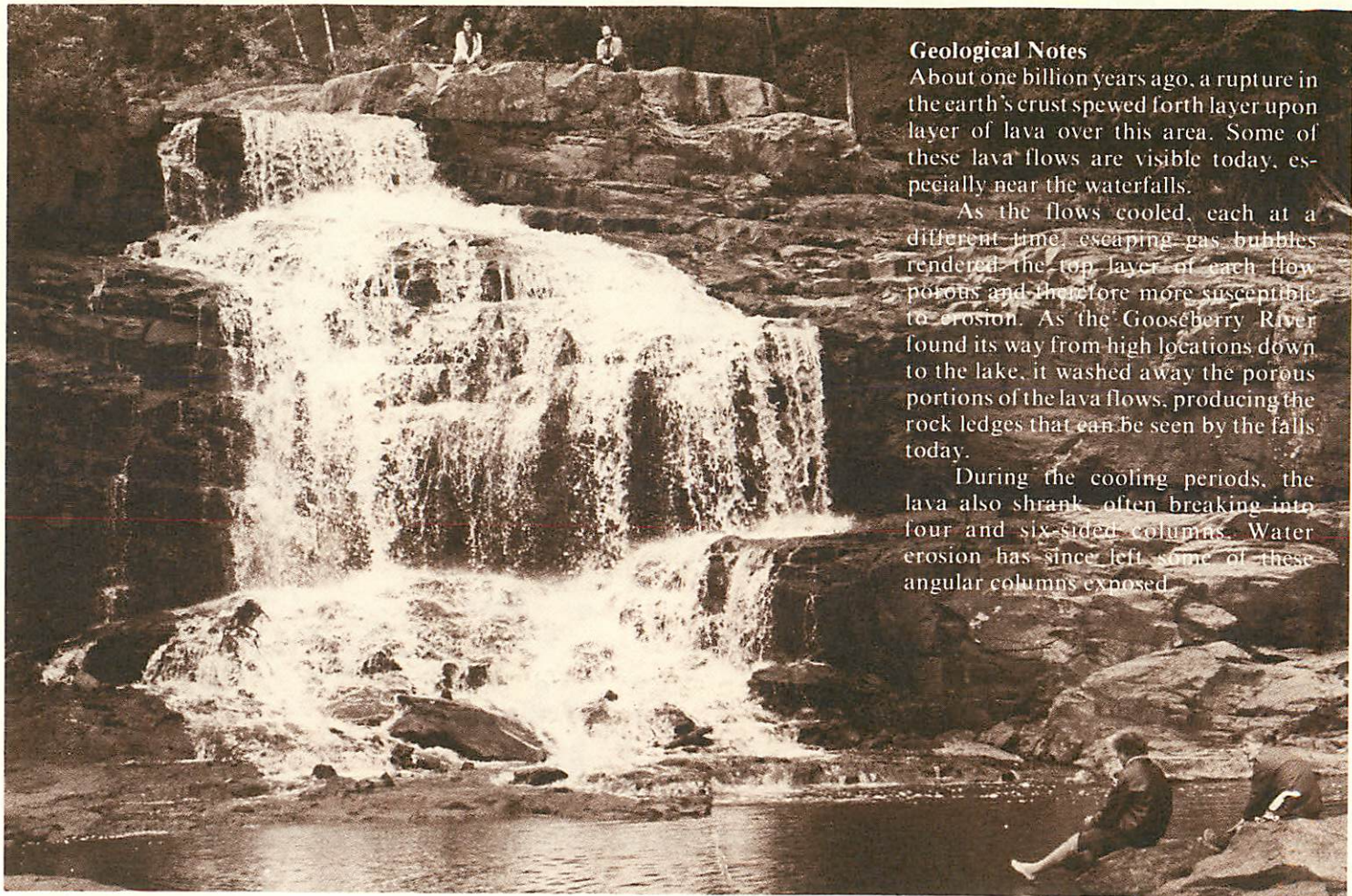
North Horizon Constellations

July-August

July 1 at 11:30 p.m.
July 15 at 10:30 p.m.
August 1 at 9:30 p.m.
August 15 at 8:30 p.m.

-  North Star (Polaris)
-  Brighter stars
-  Fainter stars
-  Constellations





Geological Notes

About one billion years ago, a rupture in the earth's crust spewed forth layer upon layer of lava over this area. Some of these lava flows are visible today, especially near the waterfalls.

As the flows cooled, each at a different time, escaping gas bubbles rendered the top layer of each flow porous and therefore more susceptible to erosion. As the Gooseberry River found its way from high locations down to the lake, it washed away the porous portions of the lava flows, producing the rock ledges that can be seen by the falls today.

During the cooling periods, the lava also shrank, often breaking into four and six-sided columns. Water erosion has since left some of these angular columns exposed.



38.5 Split Rock State Park ? (A) (R) (!)

The park includes much of the area along the shore from west of the Split Rock River to the lighthouse. From the water, one of the cliffs appears to be split in two parts, hence the name Split Rock.

In 1901, the Minnesota Abrasive Company began mining for corundum west of where the lighthouse now stands. This site is now known as Corundum Point. Corundum, an extremely hard mineral, was in demand for the manufacturing of grinding wheels. In 1903, the company was purchased (through an exchange of stock) by a new competitor in the corundum mining field, the Minnesota Mining and Manufacturing Company (3M), which had been organized in Two Harbors the year before and had begun another corundum

In addition to the many severe storms at this end of the lake, can you think of another reason a lighthouse was required in this area?

Answer on page 40.

Lighthouse lens

mining venture farther north on the shore near the Baptism River. A few years later, after learning that the rock was anorthosite and not rare corundum, the 3M Company turned to manufacturing sand paper. Founded on a shoestring and a mistake, 3M is now one of the largest industrial companies in the world. Since 1910 its headquarters have been located in St. Paul.

40.5 Split Rock Lighthouse

At the turn of the century iron ore mining in Minnesota was at its peak. Fleets of freighters were loaded with ore at the ports of Duluth and Two Harbors then traveled down the Great Lakes toward the steel mills in the east. It has been said that during this time, the Saulte Sainte Marie locks and canal system handled six times the amount of shipping in eight months that the Panama Canal handled in a year.

The long recognized need for a lighthouse in this area was finally acknowledged when, in 1905, the U.S. Government allocated funds for a lighthouse to be built at this site. Construction began in May of 1909.

Building a lighthouse at Split Rock was a difficult proposition in because there was no road along the North Shore. When the first load of construction materials arrived by boat, a derrick had to be erected near the top edge of the cliff and firmly anchored to the rock

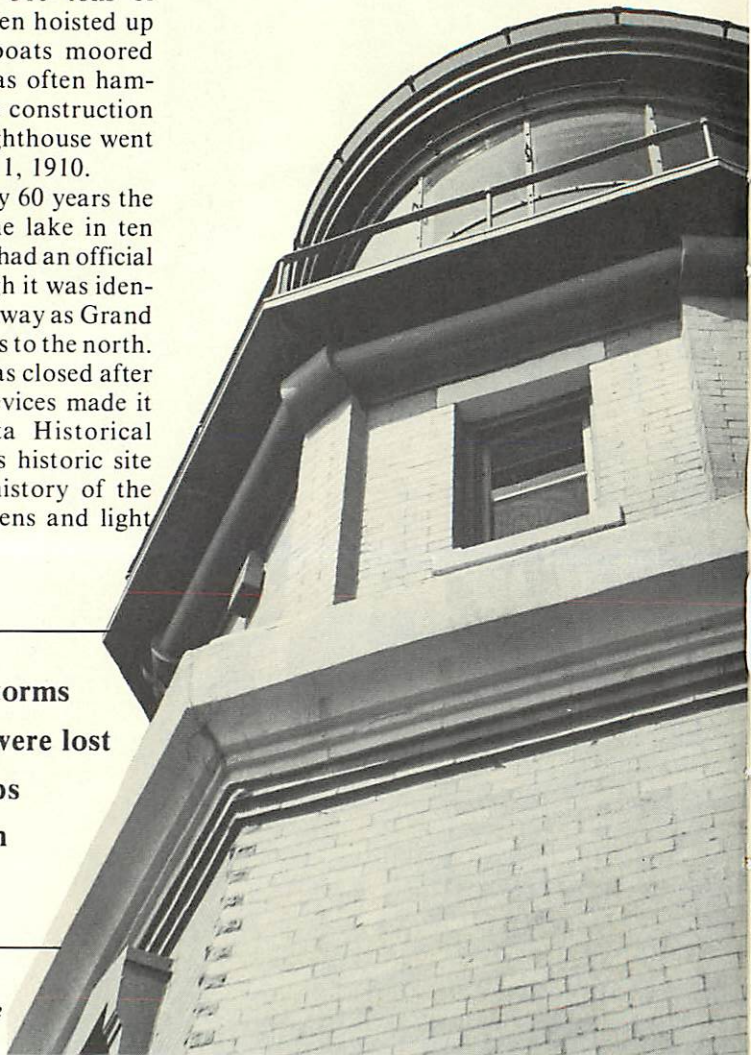
surface. Within a year, 310 tons of building materials had been hoisted up the 100 foot cliff from boats moored below. This procedure was often hampered by gusty winds, but construction was completed and the lighthouse went into operation on August 1, 1910.

Every night for nearly 60 years the light shone out across the lake in ten second intervals. The light had an official range of 22 miles, although it was identified by fishermen as far away as Grand Marais, more than 60 miles to the north.

In 1969 the station was closed after electronic navigational devices made it obsolete. The Minnesota Historical Society now operates this historic site and gives tours on the history of the lighthouse and how the lens and light operated.

**In the late season storms
of 1905, 215 lives were lost
and nearly 30 ships
were damaged on
Lake Superior.**

Split Rock Lighthouse



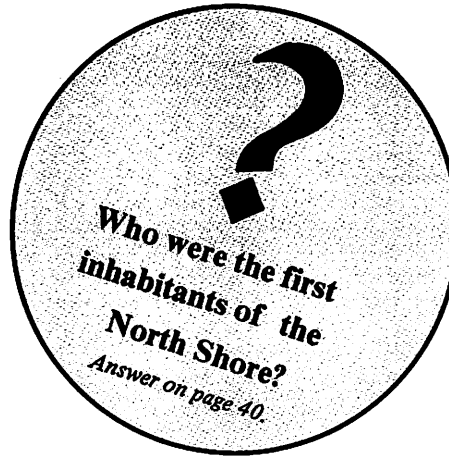
BE SURE TO . . .

1. Stop at the wayside area on the lake side of the highway just northeast of the Split Rock River where trails take you to the mouth of the river and to several overlooks on the shore.
2. Visit Split Rock Lighthouse:
 - a. Climb to the top of the lighthouse to see the lens that still floats in 250 pounds of mercury.
 - b. Tour the keeper's house which has been restored to its pre-1930s condition.
 - c. Take the trail to the southeast that leads down to the rocky shore for a good view of the lighthouse 125 feet above the lake. Remember to take your camera.

SPLIT ROCK STATE PARK TO JUNCTION HWY 1

45.0 Beaver Bay

Founded by German immigrants in 1856, Beaver Bay is the oldest settlement with a continuous existence on Minnesota's Superior shore. The German founders opened the region's first sawmill, providing employment for most of the townspeople. The sawmill also employed many Ojibwa in the area. Beaver Bay became well known for the friendly relations between the immigrant settlers and the Ojibwa.



A totem pole on the upper side of the first Beaver Bay street away from the lake marks an Indian cemetery containing burials from 1865. Buried here is John Beargrease the best known of the early mailmen who made the weekly trip between Two Harbors and Grand Portage. Beargrease used a dogsled during the winter and became a North Shore legend for his dependability no matter what the weather.

BE SURE TO . . .

1. Look for the totem pole that marks the Indian cemetery and the bronze plaque that gives the names of the Indians buried there.
2. Look for commercial fishing activity on the lake once you've passed through town on your way north.

49.0 Silver Bay



Within three miles of Beaver Bay, the oldest town on the North Shore, is Silver Bay, the newest. The city was created in 1956 by the Reserve Mining Company to house the workers at its newly built, and first of its kind, taconite processing plant. The plant was built here on the shore because of its need for large amounts of water. It is the only taconite plant not built at a mining site. At full capacity, the plant can produce over nine million tons of iron ore pellets per year.

Until 1974, 67,000 tons of waste rock, called tailings, were dumped into the lake daily. After public concern over water quality ended in a court dispute, Reserve Mining agreed to dump the tailings on land several miles from shore.

BE SURE TO . . .

Take the extensive tour of the Reserve Mining plant.

**The word "Chippewa"
is the U.S. Government's
official name for
the Ojibwa Indian Nation
as the word "Sioux" is for
the Dakota Indian Nation.**



52.0 Palisade Head

Here begins the dense reddish lava formation known as the palisades. For the next 40 miles as you travel northward, you will see a rugged and forested coastline that has been likened to the Maine and Oregon coast in its beauty.

The turn-off to the Palisade overlook is at milepost 357 on the lake side of the highway. From Palisade Head, the top of which is 348 feet above the water, enjoy the view and look for Shovel Point, two miles to the north.

As legend has it, Indians would test their archery skill by attempting to shoot arrows from canoes below to the top of Palisade Head.

53.5 Baptism River/Tettegouche State Park



Because missionaries used these waters to anoint new converts, the name *au Baptême* was given to the river, a French word meaning baptism.

Once called Baptism River State Park, this area is now part of the larger Tettegouche State Park, presently being developed.

Tettegouche, meaning retreat, was the name given to this area by members of the Micmac tribe of Native Americans. These Indians were brought here from the east coast by the first lumbermen of the area to work in the logging camps.

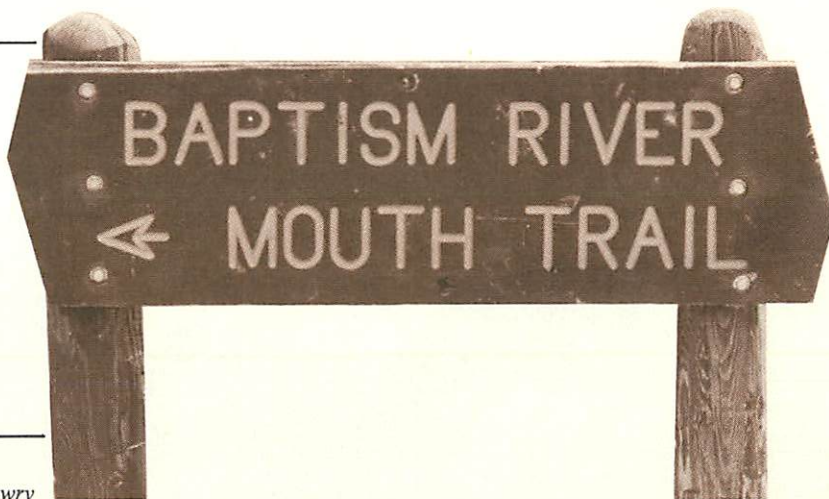
Between milepost 358 and 359 on

the lake side of the highway, is a turn-off to two parking areas. Well-marked trails from the lower parking lot lead to the mouth of the Baptism River and upstream over a mile to where the river falls nearly 80 feet.

From the upper parking lot, the three-quarter mile Shovel Point Trail goes in toward the lake for almost a quarter of a mile then turns left. The trail is then a vigorous and somewhat hazardous (because of cliffs) hike to the end of Shovel Point, a wonderful place for viewing the palisade shoreline.

BE SURE TO . . .

1. Drive the narrow and winding road up to the Palisade Head overlook for a breathtaking view of the area. Do your exploring carefully.
2. Take the trail to Shovel Point (allow an hour for the round trip) and the trails to both the mouth of the Baptism River and upstream to the High Falls. The hike to the High Falls takes about 45 minutes one way.
3. Look for rock climbers on the faces of the nearly vertical cliffs along the palisades.
4. Keep young children in hand when hiking and exploring the palisade area.



Look Closely

Site: Baptism River

Remember the old saying, "when in nature take only photographs, leave only footprints." So instead of collecting, check off the things you find.

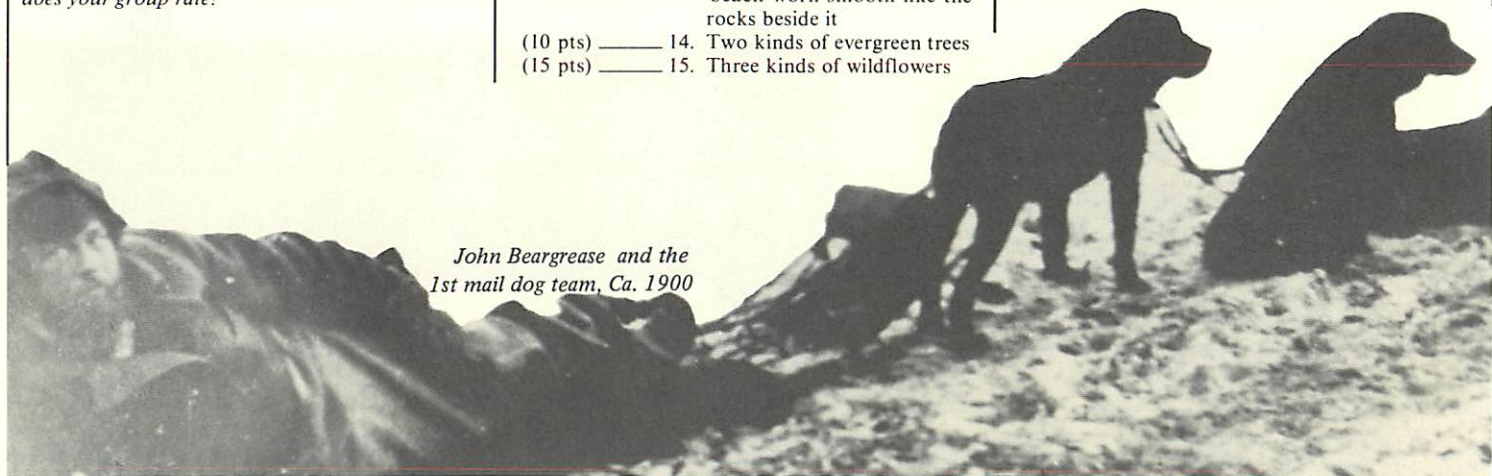
*Scoring: 90-100 Super naturalists
70-80 Pretty good naturalist
50-60 Good observers
30-40 Keep looking
10-20 Well, you found something*

Each of you should find at least 10 points. How does your group rate?

- (5 pts) _____ 1. A fuzzy leaf
- (5 pts) _____ 2. A spider web
- (5 pts) _____ 3. A rotting log
- (5 pts) _____ 4. A bird feather
- (5 pts) _____ 5. A plant growing on rock
- (5 pts) _____ 6. A chipmunk
- (10 pts) _____ 7. A ship on the lake
- (5 pts) _____ 8. A sandbar at the mouth of the river.
- (5 pts) _____ 9. An orange colored mushroom (fungus)
- (5 pts) _____ 10. A tree over 30 feet in height
- (5 pts) _____ 11. A hole in a tree made by an animal
- (5 pts) _____ 12. A hole in the ground made by an animal
- (5 pts) _____ 13. A piece of colored glass on a beach worn smooth like the rocks beside it
- (10 pts) _____ 14. Two kinds of evergreen trees
- (15 pts) _____ 15. Three kinds of wildflowers

BONUS FINDS (20 pts each):

- _____ A rainbow near a waterfall
- _____ Moonrise over the lake *or* the northern lights
- _____ An agate, Minnesotas state rock *or* Thomsonite
- _____ Animal tracks



*John Beargrease and the
1st mail dog team, Ca. 1900*

JUNCTION HWY 1 TO SCHROEDER

55.0 (to Junction Hwy 1) Crosby- Manitou State Park (A) (!) (⚡) (R)

North on Highway 1, and east of Finland on Lake County Road 7, is the entrance to George Crosby-Manitou State Park, a large undeveloped park established for hikers and backpacking campers.

59.0 Little Marais

Meaning “little marsh” in French, this was once an active logging area and a place where logs were collected in rafts and towed along the North Shore to Duluth.

63.0 Manitou River

The name comes from the Ojibwa word *Manito* which means great spirit.

The river begins by winding through George Crosby-Manitou State Park. Then the river flows through a deep gorge and plunges into Lake Superior, the only falls with a straight drop into the lake. The falls are on privately owned land, and a fee is charged for access to them.

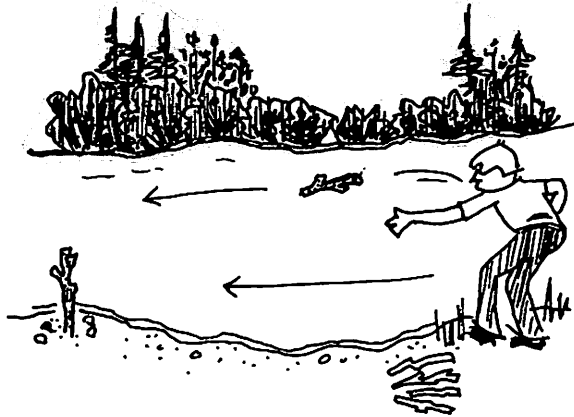


Monument to Father Baraga at Schroeder

Where Something is Fishy

Site: Caribou River

Fishing a stream is different from fishing the quiet water of a lake both in the kinds of fish caught and also the methods required to catch them. Successful stream fishing depends a great deal on knowing how to "read" the moving water to discover where fish would feed and where they would rest.



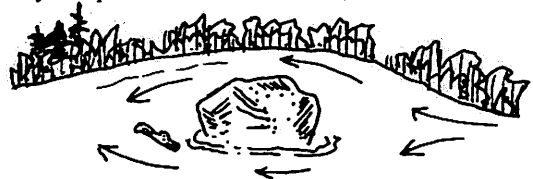
1. At the Caribou River, collect a handful of small sticks. Check the river's speed (velocity) by marking a point on the bank and pacing a distance up the river (about 20 feet). Throw a stick into the river and time how long it takes to get even with the mark. Divide the distance by the time to get an average feet/sec. for that stretch of river.

Can you find an area that is slower? What stretches of the river would allow fish to remain stationary while using the least energy.



2. Rocky outcroppings, logs, waterfalls, and boulders may create unusual currents in some places along the river. These changes in the river's flow may offer fish a place to feed or rest.

Try throwing a stick near a rock outcropping or log that projects into the river. Can you find an area of river where the water turns and appears to flow upstream? This is called an "eddy"



3. Throw a stick just behind (downstream) a boulder which is in the middle of the river. Is the water immediately behind the boulder moving as fast as the water flowing beside the boulder? What happens further back from the boulder?

4. If you can safely reach an area near the base of the waterfalls try throwing a stick near the falls. Does the stick float downstream or do recirculating currents draw it back upstream to the falls?



Riffles, eddies, and turbulent areas are where the native brook trout or planted brown and rainbow trout may often be found feeding. The quiet waters behind rocks and logs or the water in deep pools are more likely to hold trout which are resting or seeking shade from the midsummer sun.

66.0 Caribou River ☹️Ⓜ️Ⓜ️Ⓜ️

Between mileposts 370 and 371 on the side of the highway away from the lake, this wayside rest area is a nice place for a picnic and, unless the river is extremely high, is a safe place for children to explore a North Shore stream.

The river gets its name from the woodland caribou, a type of deer closely related to reindeer, that were abundant in these forests about 100 years ago. Today they are mostly found in Canada.

The stands of large birch trees from here to Schroeder are evidence that much of this area was burned in the forest fire of 1926.

72.0 Taconite Harbor

Recorded on earlier maps as Two Island River, this area is now the site of a power plant which supplies the Erie Mining Company's Iron Range taconite plants with electricity. This is also a shipping site and you may observe taconite being loaded into ships.

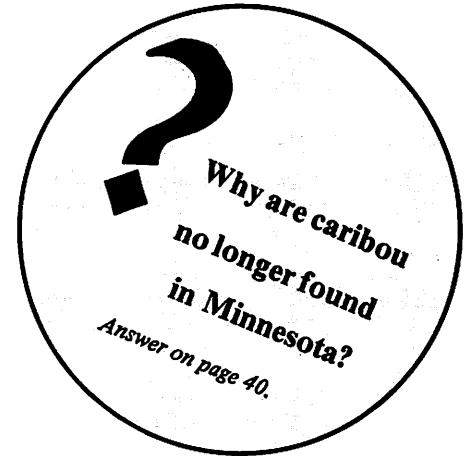
Lake Superior was named "Kitche Gummi" or great water by the Ojibwa Indians and "Superieur" by the early French explorers because of its position at the head, or top, of all the great lakes.

75.0 Schroeder Ⓜ️

The town gets its name from the Schroeder Lumber Company which operated here on the Cross River during the turn of the century and employed nearly 1,000 men.

During a fierce storm in 1846, the mouth of this river provided safe refuge for Father Frederick Baraga, a missionary priest, as he traveled by canoe across the lake from the Wisconsin shore to minister to the Indians. In gratitude for his safe landing, the Indians erected a crude wooden cross at the river's mouth and named the river *Tchibaiatogo-zibi*, or spirit of the soul river. A granite cross has since been erected at this site.

Affectionately called the "snowshoe priest," Father Baraga came to America from Yugoslavia in 1830 and traveled all over this region to minister to the Indians. In addition to his priestly duties, Father Baraga translated the Bible into Ojibwa and wrote the first Ojibwa grammar book and dictionary.



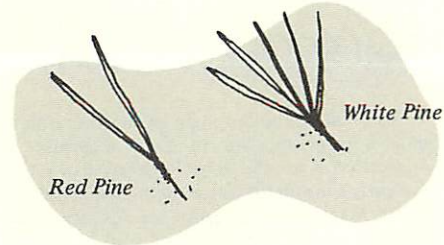
BE SURE TO . . .

1. Take an inland loop trip to view the hills and gain a ridgetop view of Lake Superior. One suggestion is to take State Highway 1 to Finland (an early Finnish logging settlement) and return to Little Marais on the shore via County Road 6 (approximately 15 miles round trip).
2. Stop at the Caribou River wayside rest area for a picnic and explore a generally tame North Shore stream. Hike to Caribou Falls, one-half mile upstream.
3. Stop in the town of Schroeder and view the Cross River Falls from the highway bridge.

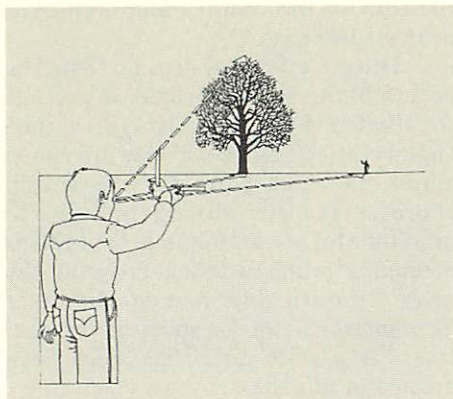
Timber

Site: Temperance River

As you hike into the northwoods, imagine the land as it must have appeared 200 years ago when most of Minnesota was covered with pine forest. White pine, the loggers prize, were often 5 to 6 feet in diameter and often 200 feet high. Minnesota's state tree, the red pine, grew to 3 feet in diameter and reached 100 feet in height. All of the giant pines were felled by the loggers. You may still see a few white and red pine growing along the North Shore, but these pines are not old enough to be more than 2 feet in diameter and 50 to 70 feet in height.



At Temperance River, take the Cauldron Trail on the east side of the river a short way above the highway to an open area where the river takes a bend and you can see the water falling through the dark and narrow rock canyon. Try to measure the height of the double-trunked cedar tree on the east bank that leans toward the river and seems to be clinging to the rock with its exposed root system.



What are the largest trees you see along the North Shore? What is their height and their diameter? An easy method of measuring the height of a tree requires a short stick and the help of a friend. Hold the stick vertical at arms length and position yourself so that the top and bottom of the tree appears the same height as the stick. Keep your arm extended and turn the stick horizontal with one end still at the base of the tree. Ask a family member or friend to start from the base of the tree and walk away from the trunk at a right angle to you. Stop the person when he or she appears to reach the end of the stick (see illustrations). The distance between the person and the tree should equal the height of the tree. Pace off this distance and you will have the height of the tree. It is a good idea, beforehand, to practice your pace to equal one yard (3 feet or 36 inches) or one meter (39 inches).

One method of estimating the diameter of a tree is to hug a tree. A person's arm span (finger tip to finger tip) is approximately equal to his or her height. If the ratio of diameter to circumference is about 1 to 3 (actually 3.14 or π), then a person with a six foot arm span should be able to hug a tree almost two feet in diameter with his or her finger tips just touching.

A giant pine 5-6 feet in diameter would have a circumference of 16-18 feet. How many of you does it take to make a circle that big?



Find a tree to hug that is just your arm span and figure its diameter.

arm span (or height)	approximate diameter of tree
3 feet	11-1/2 inches
4 feet	15 inches
4 feet, 6 inches	17 inches
5 feet	19 inches
5 feet, 6 inches	21 inches
6 feet	23 inches



SCHROEDER TO LUTSEN

77.0 Temperance River State Park



The Ojibwa named this place *Kawinbash* meaning deep hollow. The river falls rapidly (160 feet in one-half mile) before emptying into Lake Superior. The swirling action of the water has been carving potholes of all sizes into the soft lava rock for centuries.

After Europeans settled the area the river was humorously named for the fact that it was the only river with no “bar” (sand bar) at its mouth. A sand bar is formed by lake waves pushing sand up against the shore. But the force of a fast moving river may prevent sand from building up. Occasionally this river doesn’t live up to its name and a sand bar will form. Do you see one?

This state park has many miles of hiking trails that lead along the river gorge and inland into the Superior National Forest. The park entrance is just northeast of the river.

Cascade River

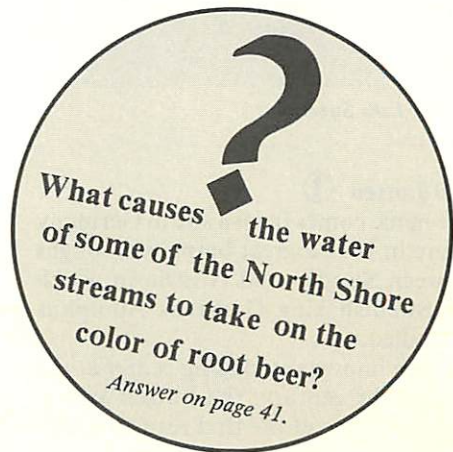
78.0 Tofte

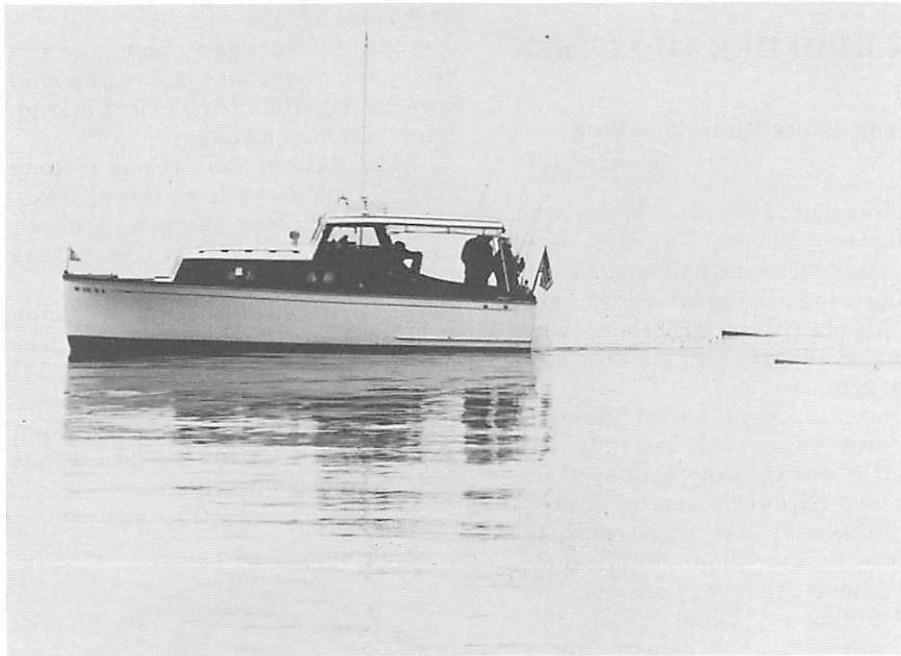


Founded by Norwegian immigrants in 1898, the town was a logging and commercial fishing settlement and an important boat landing.

The Sawbill Trail (Cook County Hwy. 2) which leads to inland lakes, canoe routes and camping grounds of the Boundary Waters Canoe Area (BWCA), begins here.

Two miles west of Tofte is Carleton Peak, one of the highest points along the North Shore, with an elevation of 927 feet above lake level, 1527 feet above sea level. It is quite a scramble to the top but a panoramic view of the lake awaits those who make the climb.





Trolling Lake Superior

85.0 Lutsen

The name comes from a site in Germany where in 1632 a great battle was fought between Sweden and Austria in which the Swedish king Gustavus Adolphus was killed.

An important logging center at the turn of the century, the Lutsen area is the site of one of the first resorts on the North Shore and in the state. This area

is now an active year-round recreational area with resorts and trails for cross-country and downhill skiing, snowmobiling, and hiking.

The Caribou Trail (Cook County Hwy. 4) begins here and ends at Brule Lake, a Canadian boundary lake of the Boundary Waters Canoe Area (BWCA).

Potholes in the lava rock near water falls are “tooled” out of the rock by loose pebbles and boulders that are swirled about by the force of the water.

BE SURE TO . . .

1. Hike the many trails in Temperance River State Park and look for the circular formations in the lava rock made by the falls. Keep children in hand.
2. Climb to the top of Carleton Peak for a terrific view of the lake and surrounding area. To get there drive 2.5 miles up the Sawbill Trail to the Sanitary Landfill. Turn left onto a dirt road which may be very rough. At the end of the road, an unmarked trail takes you to the 250 foot uphill climb.
3. Take the Leveaux and Oberg Mountain Trails. Both trails begin from a parking lot approximately two miles inland. Take the first left turn after the Onion River (Forest Road 336) just north of the Ray Bergland State Wayside. The gravel road turn off is marked with a “Superior Hiking Trail” sign on the lake side of Highway 61.

The Leveaux Mountain Trail is a 1-1/2 mile loop which winds through maple stands—a colorful hike in the fall.

The Oberg Mountain Trail is a 1-1/4 mile loop which provides views of Lake Superior and bluffs and ridges. It is a self-guided wildflower identification walk. Brochures may be available at the trail head.

4. Check the calendar of events at the Lutsen Town Hall for such community activities as nature programs and the summer art fair.

LUTSEN TO GRAND MARAIS

95.2 Cascade River State Park



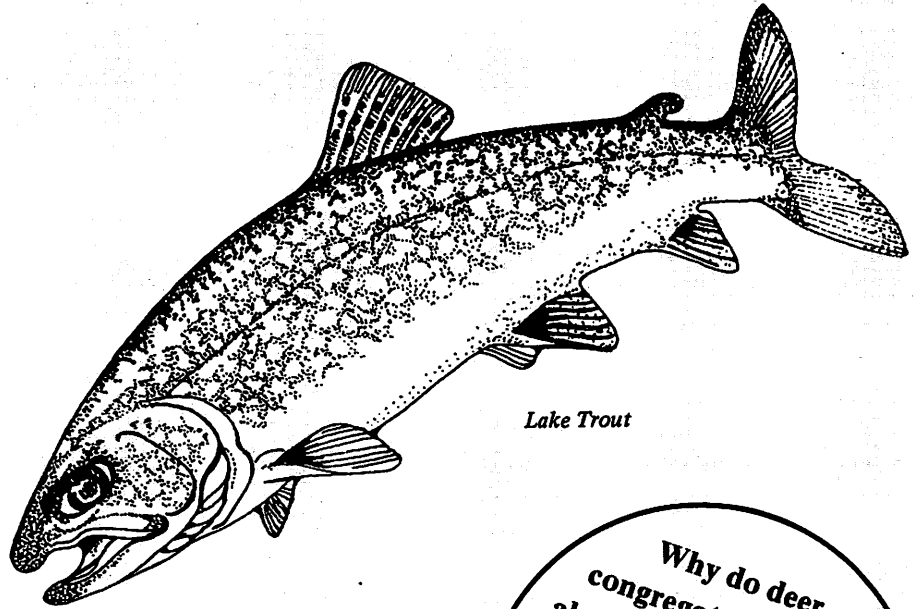
The Cascade River and nine other streams flow through the park as they empty into the lake. With many lakes and swamps at its headwaters, the Cascade River is an excellent trout stream.

An extensive and well-groomed trail system on both sides of this picturesque river begins from a wayside parking area on the highway a half mile southeast of the park entrance. Upstream are the spectacular upper falls. As the river flows its last three miles to Lake Superior it drops 900 feet over a series of magnificent steps. These lower falls give the river the name.

In winter the Cascade area is the site of the largest deer yard in the state, with a density often reaching 100 deer per square mile.

97.0 Thomsonite Beach

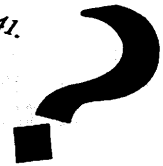
Between mileposts 402 and 404 is a two mile stretch of shore that is one of the very few places in the world where thomsonite, a semi-precious gemstone, is found. This land is privately owned.



Lake Trout

Why do deer
congregate in areas
along the shore in winter?

Answer on page 41.



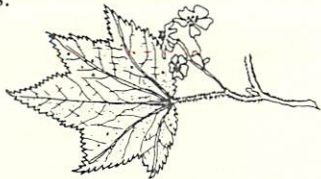
Formed by mineral deposits in the gas bubbles of the lava flows, thomsonite can vary in quality, color and pattern. The only semi-precious thomsonite in the country is found here on this short stretch of shore, and it is only here that the unique green and pink eye-patterned thomsonite is found.

Shades of Green

Site: Cascade River State Park

Undoubtedly, you will be aware of the carpet of green ground cover at your feet as you hike the North Shore trails. The following plants are common to the cool moist soil of the northwoods. Can you find all of them?

Remember that early summer (before mid-July) is best for finding wild flowers and late summer (after mid-July) is best for finding wild fruits and berries.



THIMBLEBERRY (or Flowering Raspberry)

In Minnesota, this plant is found only in the northeast region of the state. Along the North Shore it is abundant. The plant is in the rose family and grows two to four feet high. The large leaves are wide and lobed, much like a maple leaf. In early summer the plant displays showy white flowers about two inches across, in late summer flat orange-red raspberry-like berries. Although quite tasteless, the berries are edible.

Bunchberry



Bunchberry (or Dwarf Cornel)

This low growing ground cover is a member of the dogwood family (its flower resembles that of the flowering dogwood shrub). Look for patches of these very symmetrical plants showing one inch wide white flowers in early summer and bunches of red berries in late summer. Indians were said to mix these berries with other ingredients to make a pudding.

Canada Mayflower (or False Lily of the Valley)

This low growing plant is in the lily family. Each plant has two to three shiny broad pointed leaves that are heart shaped at their base. In early summer you will find small white flowers in upright clusters and in late summer very small green speckled berries.

Clintonia Lily (or Blue-bead Lily)

This plant, also in the lily family, grows to less than one foot in height and has a clump of three to five shiny elliptical leaves. Pale yellow lily-like flowers, three-fourths of an inch long, appear on a tall stem in early summer. In late summer the plant shows large blue berries. These berries are poisonous. Ojibwa women created artistic designs, which they used in their handwork, by biting into the leaf blades of this plant.

Canada
Mayflower



Clintonia Lily



Bracken Fern



Bracken Fern

Ferns are non-flowering plants that grow throughout the world and the Bracken fern is the most common of these widely found plants. The leaves of the Bracken fern are distinctively triangular in shape and fan out almost horizontally from the center of the plant. Look for knee-high colonies of this dark green fern in the northwoods. New growth is coiled up in structures called fiddleheads, named because they resemble the scroll at the tuning end of a violin. The best time to observe fiddleheads is in the spring but, because the Bracken fern grows new leaves all season, you may find fiddleheads hidden within the plant all summer. Ferns are among the oldest forms of plant life on earth. Fossils have documented their existence 100 to 300 million years ago.

If you want to learn more about the wildflowers of northern Minnesota, be sure to pick up the leaflet on the wildflowers of the Oberg Trail. This self-guided tour is a joint effort of the Lutsen-Tofte Garden Club and the Forest Service. Leaflets should be available at the trail site or at the Forest Service Ranger Station in Tofte.

99.0 Good Harbor Bay (R) (R)

At milepost 404 a small wayside area above this bay provides a good view of the lake. An historic marker points out that the highway cut has exposed one of the few sandstone beds on the North Shore which is overlaid with lava.

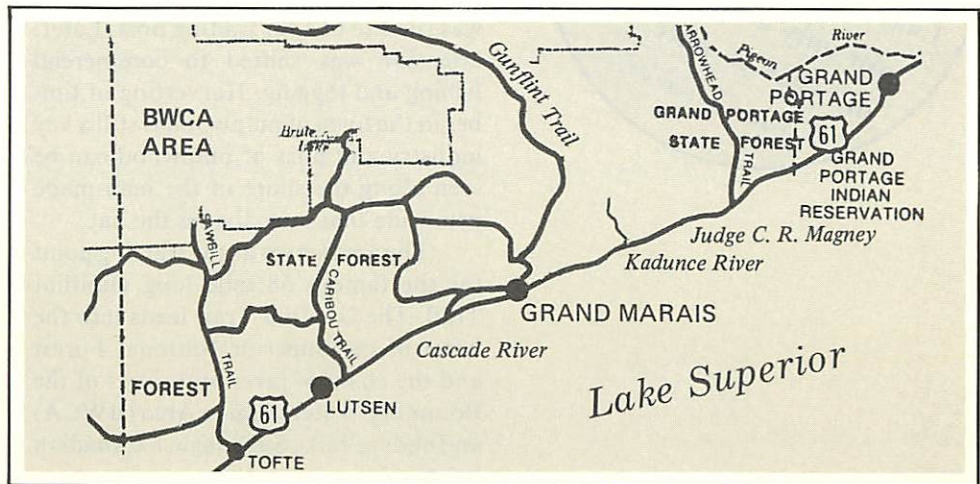
Although most thomsonite is found on privately owned land (some of which is accessible to rockhounds for a fee), some may be found washed up at nearby Cut Face Creek, on the north side of the bay.

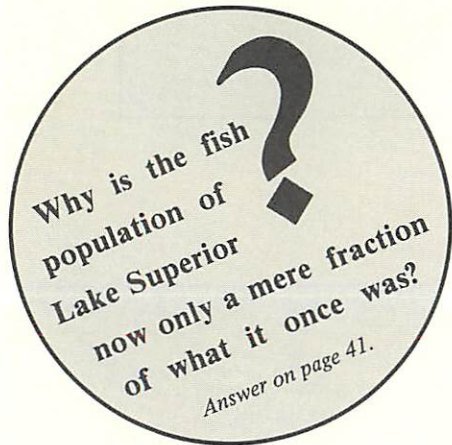
BE SURE TO . . .

1. Take the Cascade River Trail to a spot where five water falls can be seen at one time. The Lookout Mountain Trail, which branches off the Cascade River Trail, is good to hike at any season and leads to an overlook of the lake and surrounding area.

2. Look for the layer of sandstone sandwiched between lava flows in the highway cut as you drive the curve around Good Harbor Bay.

The Sawbill, Caribou, Gunflint,
and Arrowhead trails
were once logging roads.





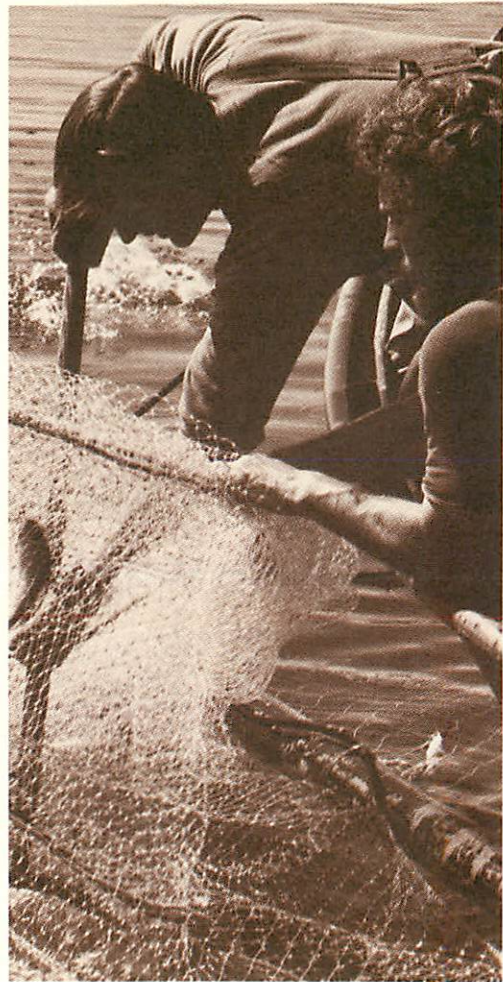
GRAND MARAIS

105.0 Grand Marais ! (R) (A) (T) (S) (?)

The Indians called this area *Kitchibitobig* meaning “double bay.” The French named the area Grand Marais, which means “grand marsh.” Try to visualize this natural harbor as it must have looked three hundred years ago. The area where the Coast Guard Station is now located was once an island separated from the shore by a shallow marsh.

The city was founded in the early 1800s. The first white settlers arrived by boat. For a short time Grand Marais was the site of a fur trading post. Later, attention was shifted to commercial fishing and logging. Harvesting of timber in the form of pulpwood is still a key industry and piles of pulpwood can be seen along the shore of the man-made peninsula that now divides the bay.

The area serves as the starting point for the famous 58 mile long Gunflint Trail. The Gunflint Trail leads into the heart of the Superior National Forest and the chain of lakes and rivers of the Boundary Waters Canoe Area (BWCA) and ends at Lake Saganaga, a Canadian border lake.



Commercial fishing

BE SURE TO . . .

1. Follow the signs to the downtown Tourist Information Center where regional information and BWCA permits are available.
2. Visit the Cook County Historical Museum.
3. Walk out past the Coast Guard Station and out on the breakwater. If you look carefully, you may find initials and dates carved into the rocks by some of the first settlers. Be cautious of waves when out on the breakwater! View the city from the breakwater and look for the Sawtooth Mountains rising behind the city.
4. Explore the peninsula east of the lighthouse. Notice that the common plants are different on either side of the peninsula. This is due to the impact of wind on the lake side as compared with the bay side.
5. View the lake and surrounding area from the Gunflint Trail overlook. Remember to take your camera.
6. Look for the historic landmark, St. Francis Xavier Church, located just northeast of town at the old Indian settlement of Chippewa City. The now abandoned church was built to serve the local Indians and is significant for its French architecture.

The Sawtooth Mountains are not truly mountains, but ledges of lava flows which have withstood erosion better than other areas of the North Shore. Here the layers of lava are tilted 10 to 20 degrees downward towards the lake.



Smoking fish

Sea Gulls

Site: Grand Marais

The two most common seagulls along the North Shore are very similar in appearance. Both the adult Herring Gull and the adult Ring-billed Gull have white heads, greyish wings with black and white tips and white bellies. There are two obvious differences between them. The Herring Gull has a red spot near the tip of its lower bill and pink or flesh-colored legs. The Ring-billed Gull has a dark ring completely around its bill near the tip and green-yellow legs (fig. 1). One and two year old gulls of both types are similar to adults in size and shape but have darker feathers.

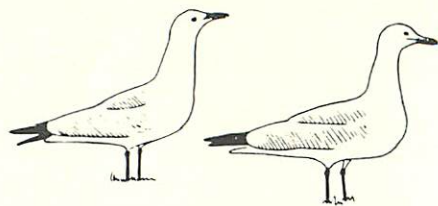
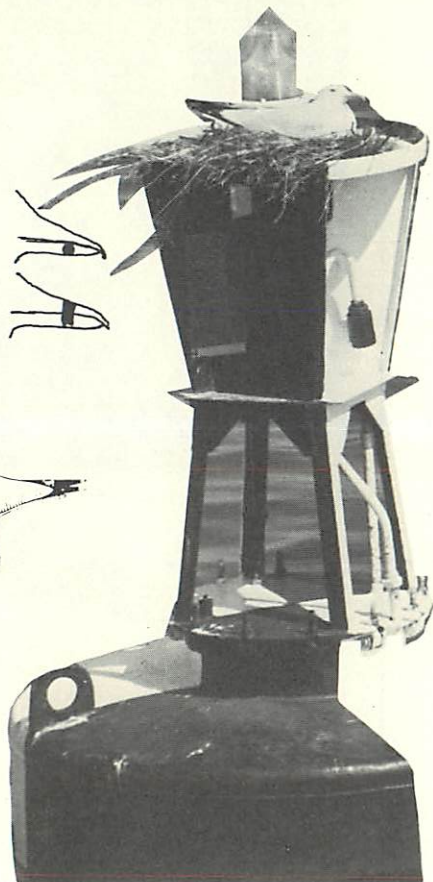
Just as people understand the intention of somebody shaking a fist at them, gulls and other birds have body postures and behaviors which tell their fellow gulls how they feel and what they intend to do.



A.) Try to find a "bossy" gull, one which is showing a threatening or aggressive posture.

Threatening or aggressive behavior in most gulls is shown by gulls which have their wings held slightly out from their body with the fore part of the wings cocked forward—ready to use in beating on another bird.

Birds which have slightly raised wings and are walking towards another in either an upright fashion with their bill pointing down and ready to strike (fig. 2) or with their body in a forward position are particularly threatening.



B.) Identify some "intimidated" or "anxious" gulls.

Gulls which are not willing to stand their ground when intimidated will have their wings flush against their sides unless they are beginning to fly away. Frequently they will have an upright posture, but their bills will be pointed horizontally or upwards (fig. 3 and 4).



C.) Identify a "submissive" bird.

In this position gulls have their wings flush against their sides, backs hunched, and neck withdrawn (fig. 5). The posture is most commonly seen with young gulls or females which are near their mates.

D.) Can you identify other postures or behaviors which seem to have a message for other gulls? What do you think they mean?

GRAND MARAIS TO PIGEON RIVER (Canadian Border)

113.5 Kadunce (or Kodonce) Creek

The stream was named by the early settlers who drank its high mineral content water. The name in French means diarrhea. Its reputation has improved over the years and it is now a popular trout fishing stream.



119.0 Judge Magney State Park



The park is named in honor of Clarence R. Magney, once Mayor of Duluth and Justice of the Minnesota Supreme Court. Judge Magney devoted a great deal of time, energy, and money to protect much of the land along the North Shore.

This is the last park before the Canadian border when going up the North Shore. It is a prime camping and hiking area. The river provides a challenge to both trout fishing and white-water canoeing enthusiasts.

The Brule River, with its beginnings at Brule Lake, flows through this scenic park. The waterfalls and churning rapids of the river continue to create potholes and unusual formations in the lava rock. Three miles of scenic trails wind through the park to several water falls including Pothole Falls where the river disappears into the mysterious "Devil's Cauldron."

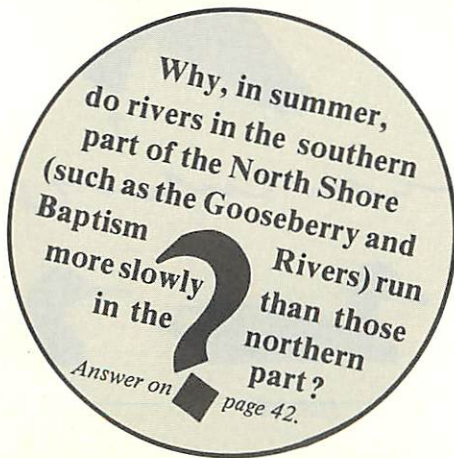
123.0 Hovland

Founded by Norwegian immigrants, as was Tofte, this area was once an active log rafting and commercial fishing site. The old cement dock can still be seen.

The Arrowhead Trail (Cook County Hwy. 16) begins here and leads to the Boundary Waters Canoe Area.

129.0 Reservation River

Although it once had the Indian name *Mesqua-Tawangewi-zibi* meaning red sand river, the river now gets its name for the fact that it is the western boundary of the reservation lands of the Grand Portage Band of Ojibwa Indians. It is one of the few North Shore streams that descends gradually from its source and does not cascade over waterfalls.



BE SURE TO . . .

1. Try your trout fishing skills at either Kimball or Kadunce Creeks.
2. Stop and explore Paradise beach located four and a half miles northeast of Kadunce Creek.
3. Hike the well-marked trails upstream on the east side of the river in Judge Magney State Park that will take you the mysterious "Devil's Cauldron." Where do you think the water disappears to? The falls are found one to one and a half miles from the highway.
4. Notice how the terrain changes as you drive north from Grand Marais. One of the most spectacular parts of Minnesota is the area between Grand Portage and the Pigeon River. These hills and ridges are formed of a slate-like bedrock highly resistant to erosion.

135.0 Grand Portage (page 35)

147.0 Pigeon River

Located six miles beyond Grand Portage, this river marks the international border between the United States and Canada. The name comes from the translation of the Ojibwa name *Omimizibi* referring to the large numbers of the wild pigeons that once lived here.

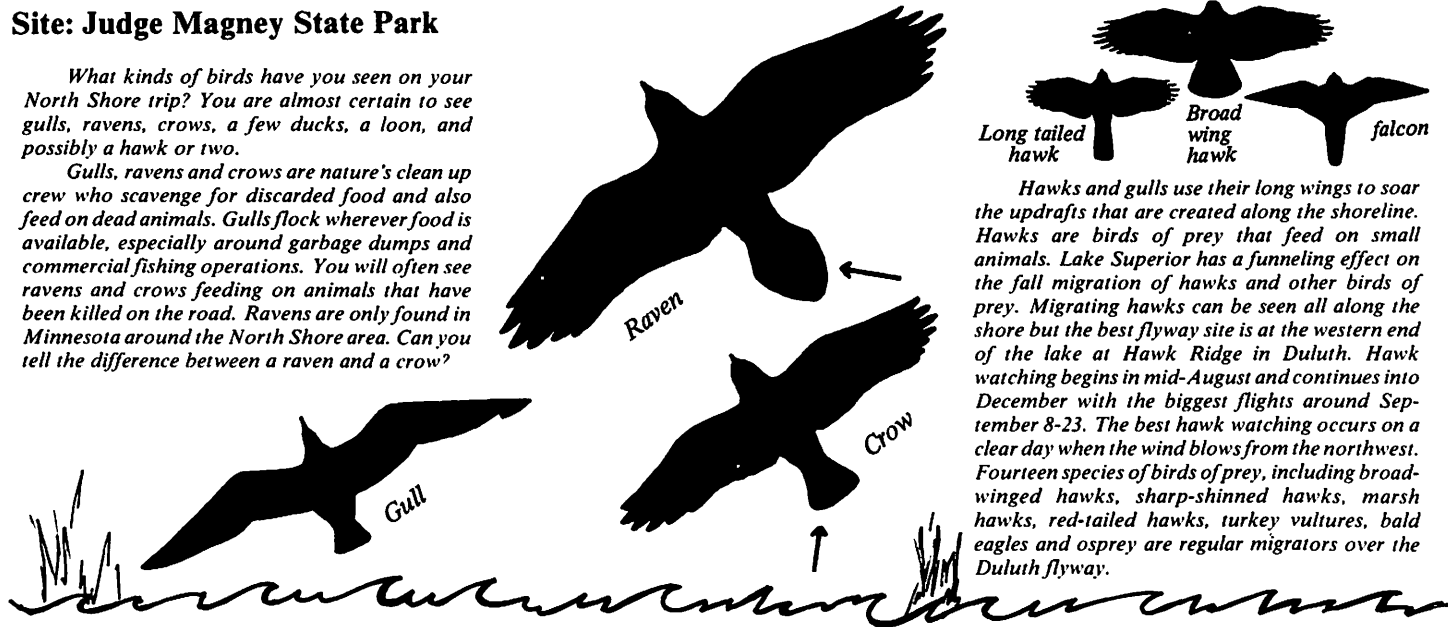
The High Falls of the Pigeon River were impassable for the voyageurs and the "grand portage" was used to get access to the waters and land which lay to the northwest. The High Falls can only easily be viewed by crossing into Canada and paying a fee to enter privately owned land which has a view of these impressive falls.

On Wing and Water

Site: Judge Magney State Park

What kinds of birds have you seen on your North Shore trip? You are almost certain to see gulls, ravens, crows, a few ducks, a loon, and possibly a hawk or two.

Gulls, ravens and crows are nature's clean up crew who scavenge for discarded food and also feed on dead animals. Gulls flock wherever food is available, especially around garbage dumps and commercial fishing operations. You will often see ravens and crows feeding on animals that have been killed on the road. Ravens are only found in Minnesota around the North Shore area. Can you tell the difference between a raven and a crow?



Hawks and gulls use their long wings to soar the updrafts that are created along the shoreline. Hawks are birds of prey that feed on small animals. Lake Superior has a funneling effect on the fall migration of hawks and other birds of prey. Migrating hawks can be seen all along the shore but the best flyway site is at the western end of the lake at Hawk Ridge in Duluth. Hawk watching begins in mid-August and continues into December with the biggest flights around September 8-23. The best hawk watching occurs on a clear day when the wind blows from the northwest. Fourteen species of birds of prey, including broad-winged hawks, sharp-shinned hawks, marsh hawks, red-tailed hawks, turkey vultures, bald eagles and osprey are regular migrators over the Duluth flyway.

On the water you may see mergansers and perhaps loons, both of which are fish eating waterfowl that swim underwater to catch their food. Mallards can often be seen near the shore during the summer months. Mallards prefer to eat insects, seeds, and plants and can be seen dabbling at the surface or feeding bottom up in shallow water. They rarely dive completely under the surface.





Chippewa community at Grand Portage painted in 1857 by Eastman Johnson

GRAND PORTAGE

135.0 Grand Portage ! @ # \$ %

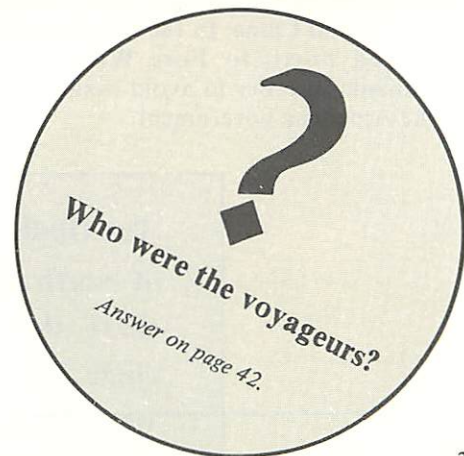
The city is located on the Grand Portage Ojibwa Indian Reservation which was created by the signing of the Treaty of LaPointe in 1854. The treaty, which predated Minnesota's statehood (1858), was between the U.S. Government and the Ojibwa Indian Nation.

The Ojibwa originally lived on the

shores of the Atlantic Ocean but, according to their oral tradition, migrated westward along the Great Lakes in search of the forests, streams and the "food growing out of the water," wild rice.

Both the Ojibwa and the Dakota (Sioux), who lived in this area before them, were familiar with the nine mile portage around Pigeon River's high falls that the French would later name "Grand Portage;" meaning the great carrying place.

French explorers and the French



voyageurs were the first white people to visit the area, arriving in the 1600s. Fur trappers and merchants followed in pursuit of the beaver whose pelt was used to make top hats which were then very fashionable around the world. The Pigeon River was an important link in the waterway routes used by the fur traders as they journeyed between Montreal and the Northwest Territories.

During the 1700s, Grand Portage became the meeting place for Indians, trappers and merchants. In 1778, England's Northwest Company built a trading post here and it became the hub of North American fur trade. For a brief period in history, from 1778 to 1805, the Grand Portage area was the center of trading activities whose products were sold in cities of North America, Europe, Russia and China. In 1805 the post was moved north to Fort William, in Canada, in order to avoid taxation by the American government.

BE SURE TO . . .

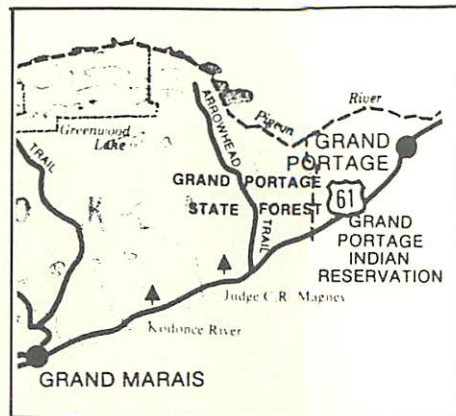
1. Stop at the Grand Portage National Monument and pick up the free information which is available inside the great hall.

2. Visit Grand Portage during the second weekend in August when Rendezvous Days are celebrated commemorating the great rendezvous of trappers and traders during the 1700s.

3. Walk the one-half mile trail behind the monument up to Mt. Rose for a good view of the fort and Grand Portage Bay, and its neighbor, Wauswaugoning Bay, which are the largest bays on Minnesota's shore of Lake Superior.

4. Take the trail to Mt. Josephine that leads you to a point high on Superior's shore where you can see the Suzie Islands, three miles to the east in Wauswaugoning Bay.

5. Take the boat trip to Isle Royale, 22 miles from shore. Grand Portage is the closest point to this island National Park which is owned by Michigan.



6. Follow in the historic footsteps of the Indians and fur traders and hike the arduous nine mile Grand Portage Trail which ends at Fort Charlotte on the Pigeon River.

7. Hike to the famous witch's tree on Hat Point.

8. View the area from Wauswaugoning Bay overlook, just north of Grand Portage Bay.

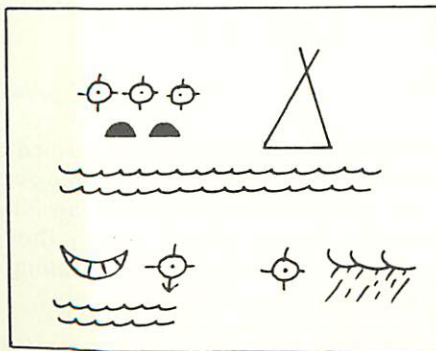
The Objibwa Indians are descendents of the most extensive family of North American Indians, the Algonquin. Other tribes that share the Algonquin language (though use different dialects) include Arapaho, Blackfoot, Cree, Micmac, Abnaki, Sauk, Delaware, Massachuset, Shawnee and Winnebago.

Messages

Site: Grand Portage

The Ojibwa Indians had a system for writing messages using symbols familiar to all of the tribe. Messages were usually drawn with charcoal on birch bark or a flat piece of cedar and left by travelers for those who may follow.

DECODE THESE MESSAGES



Here is a message which reads, "Two canoes stopped here together. One canoe camped two nights and had plenty of food. The other canoe stayed only one night, found no food and left."



—tipi



—how many nights were spent in tipi



—fire with many bones indicating good hunting and much food





—canoe





—marks are for the number of children in the family

The animal symbols in the canoes represented both the father's family and the mother's family. Each family clan, or totem, had an animal symbol. There were about 20 original Ojibwa totems.

Shown in the canoes are members of

the Eagle, () Catfish, ()

Caribou, () and Bear totems. ()

Here are some more Ojibwa symbols. Make up some symbols of your own with your own meanings and write a message to a member of your family or a friend.



rain



moon



campsite



night



sunset



3 nights



snow



water



big town of



sun or day



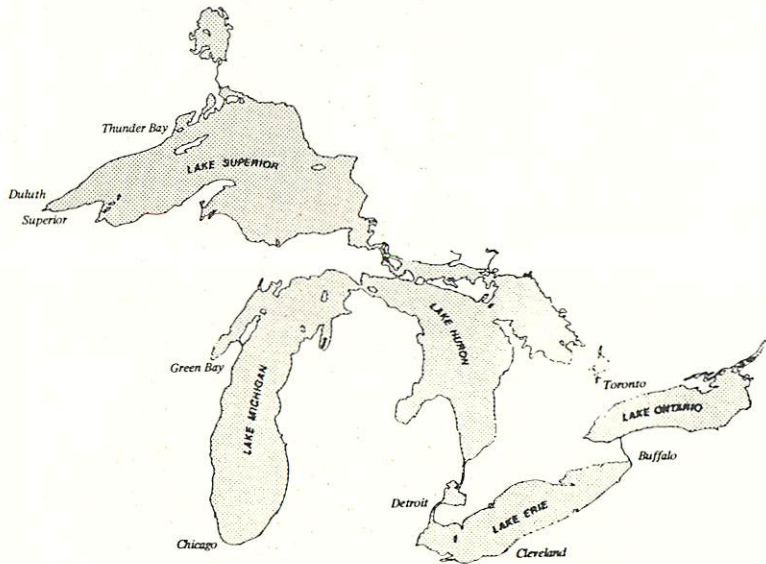
sunrise



3 days

Message says: "We stayed at a campsite near water for three days and two nights. One evening we canoed on the water at sunset. One day it rained."

Answers to Questions



1. How does Lake Superior differ from the other Great Lakes?

A. Although all the Great Lakes are referred to as North America's jewels, Lake Superior is by far the most sparkling. It is the largest, deepest and coldest of the five Great Lakes. Its bottom and shoreline are composed of the oldest, hardest and least soluble rock. Lake Superior is also the purest of the

Great Lakes. This purity means the lake contains only a relatively small amount of dissolved materials, including the nutrients which are required for the growth of algae and plantlife. Consequently, the lake produces a relatively small food supply for a limited number and variety of fish. Lake Superior has an annual production capacity of only .83 pounds of fish per surface acre, compared with nutrient-rich Lake Erie which produces 7.5 pounds of fish per acre.

Because of its great size and depth and because its shoreline is only sparsely industrialized or cultivated Lake Superior has escaped most of the environmental stresses which have taken their toll on the other Great Lakes. It is important to remember, however, that because of its position in the Great Lakes chain, whatever affects Superior will have an impact on the entire Great Lakes basin.

2. Name at least two industries which have provided jobs for the people of the North Shore?

A. There are actually four industries which have formed the economic base for the North Shore. Logging and mining were the earliest. Fishing followed as many Scandinavian immigrants settled permanently along the coast. Tourism, though not as large or as profitable as the others, is continuing to grow and is now viewed as the hope of the future.

Logging: In the mid-1800s, rumors of copper and gold deposits attracted many hopeful prospectors to the North Shore. When only small amounts of these minerals were found, attention turned to the area's vast timber resources. The North Shore lumber era began in the 1850s and for the

next half century lumber speculators became some of the wealthiest men in the country.

Those 50 years also brought about the demise of the forest resource. Virtually all the virgin red and white pines—some said to be over 200 feet tall were felled. Logging and fires have drastically altered the North Shore countenance. Today there are no stands of virgin pines remaining.

Mining: At the same time the lumber industry was flourishing, rich iron ore deposits were discovered inland near Lake Vermillion in 1865. Speculators came to Minnesota from the East and West coasts. Most notably Jay Cooke, Carnegie, J. P. Morgan and the Merritt Brothers raced to pocket the wealth. A total of 400 mines on Minnesota's three iron ranges (Vermillion, Mesabi, and Cuyana) produced the ore which helped meet most of growing America's demand for steel. Iron ore was sent by railway car to the ports of Duluth and Two Harbors and loaded on freighters which traveled down the Great Lakes to the steel mills in Cleveland, Pittsburgh and Buffalo: This valuable resource was not limitless, however, and by the 1950s all the high grade iron ore had been mined. The mining industry declined briefly until new plants were built which could process the low grade taconite ore.

Many North Shore communities have relied almost solely on this industry for jobs.

Fishing: The first permanent residents of the North Shore were predominantly Norwegian fishermen, who settled in the late 1800s near the mouths of rivers. By 1900, there were hundreds of fishermen making a living from the North Shore fishery, catching lake trout, whitefish and siscowet trout. When the trout and whitefish declined North Shore fishermen turned to herring. In the 1930s and 1940s fishermen pulled more than five million pounds of herring from the lake annually. Today, there are only a few licensed

commercial fishermen left in this area.

Tourism: Upon completion of U.S. Highway 61 in 1925, the isolated North Shore communities were opened to the rest of the nation which was just entering the age of automobiles. Many of the old commercial fishing camps became rustic summer resorts for tourists. The scenic beauty of the North Shore continues to attract ever increasing numbers of visitors.



3. How was this great lake formed?

A. About one billion years ago intense volcanic activity began in this area and lasted for a period of 20 million years.

During that time lava flowed over the area hundreds of times, accumulating to a thickness of nearly 3,000 feet. The volcanic activity, related to a deep fracture which extended from northeast Oklahoma to Lake Superior, nearly split North America apart. (A similar fracture developed between Europe and North America about 100 million years ago and did split these two land masses, forming the Atlantic Ocean floor.) In the Lake Superior region, the fracture widened to about 50 miles. As the fracture stabilized, pressure from inside the earth convulsed the earth's surface and pushed the rock blanket upward. The rock rose slowly, subsided, and eventually tilted toward the area that would later become the Lake Superior basin.

Then about one million years ago the first of four ice ages took place. Throughout the ice ages glaciers (sheets of ice

thousands of feet) covered all of northern Minnesota and much of Canada. As these glaciers inched southward they scraped the earth, flattening mountains, pushing boulders and carving out craters. These same glaciers gouged out the Lake Superior basin. The weight of the glaciers also depressed the land surrounding the basin.

As the last glacier melted and receded northward at a rate of 3 city blocks per year, about 11,000 years ago it formed an ice dam and created the ancient lake called Glacial Lake Duluth. The shoreline of this ancient lake was more than 500 feet about its present level.

With the removal of the thick glacial ice the land along the shore, long depressed by the glacier's weight, began to rise to its pre-ice age level. In fact, ninety percent of Superior's shoreline is characterized by bluffs formed during this uplift. The shore is still rebounding at a rate of a few feet per century.

As the melting glaciers uncovered outlets for the water, the lake level lowered in several steps until it reached its present level.

4. In addition to the many and severe storms that occurred at this end of the lake, can you think of another reason a lighthouse was required in this area?

A. Not only were the ports of Two Harbors and Duluth difficult to locate in a storm or fog, the magnetic properties of the iron deposits in the area and the magnetic properties of ships cargo disturbed compass readings and sent ships off-course toward the rocky shore.

5. Who were the first inhabitants of the North Shore?

A. The exposed bedrock and shallow soil of the North Shore has not offered archeologists much evidence of any prehistoric settlers in this region.

At the time the first European explorers, Pierre Radisson and Sieur des Grosseilliers, reached this area in the mid 1600s,



the Dakota and the Objibwa Indians were in battle over the territory covering the western side of Lake Superior. The area, now known as Fond du Lac, had long been the territory of the Dakota Indian Naiton (Sioux). The conflict between Dakota and Objibwa (Chippewa) continued for about 150 years, into the 1800s as the Objibwa forced the Dakota westward to the plains.

With the exception of a few fur trading posts, the North Shore remained unoccupied by white people until the 1830s and the arrival of missionaries. It wasn't until 1854, however, when the Treaty of LaPointe was signed by the U.S. Government and the Objibwa Nation, that European immigrants began to build permanent settlements along the North Shore.

6. Why are caribou no longer found in Minnesota?

A. There is not one factor but a combination of factors that caused caribou to disappear from Minnesota: overhunting, logging and the appearance of the white-tailed deer. Woodland caribou are migratory animals that once ranged throughout Canada, the northern Rockies, upper Great Lakes and New England. These deer prefer mature coniferous forests. When the southern parts of their range were altered by logging the caribou migrated northward to more forested areas.

Once the virgin timber was removed, young deciduous trees appeared, providing an ideal habitat for the white-tailed deer. In Minnesota the white-tailed deer began to flourish at the turn of the century. White-tailed deer are carriers of a parasitic roundworm which resides in the deer's brain. Although harmless to its white-tailed host, the parasite is deadly to caribou and moose.

Another factor which may have contributed to the demise of the caribou in Minnesota was overhunting. Caribou were once a major source of meat and hides for the Indians and early European settlers.

No caribou were seen in Minnesota after 1935 until a few were sighted north of Grand Marais in 1981. These caribou apparently strayed down from Canada. Wildlife experts don't know if caribou will be able to reestablish themselves in Minnesota.



7. What causes the waters of some of the North Shore streams to be the color of root beer?

A. Most of the streams emptying into Lake Superior have their origins no more than twenty miles inland. These streams start flowing from bogs or marsh areas which support a wide variety of plant life including cattails, marsh grasses, sphagnum moss and tamarack trees. These plants release tannin and

other chemical compounds which are responsible for the root beer color of the water.

8. Why do deer congregate in areas along the shore in winter?

A. Because of its size, the lake directly influences the local weather, acting as an air conditioner in the summer and a radiator of warmth (especially when not frozen) in the winter.

Milder temperatures and less snow along the shore attract deer from inland areas. They congregate in one to three mile wide "deer yards" along the shore. They can frequently be seen near or along the highway by passing cars and trucks.

9. Why is the native fish population of Lake Superior now only a mere fraction of what it once was?

A. Three major factors have contributed to the decline of Lake Superior's fish population. 1. pollution, 2. overfishing, and 3. the introduction of exotic fish species.

1. Pollution has not had as great an impact in Lake Superior as it has on the lower Great Lakes. However, pollution, especially from the pulp and paper industries, probably ruined prime spawning habitat for some fish species especially in the more industrial areas such as Duluth, Thunder Bay, Nipigon, and Sault Ste. Marie. A less serious threat to the size of fish populations but of more serious concern to human health is the contamination of fish with such toxic organic chemicals as DDT, PCB, and toxaphene. Recently it has been found that the major source of these toxic chemicals is from the atmosphere.

2. Overfishing has had an impact on many of the more commercially valuable fishes in Lake Superior. Improvements in fishing gear, boats, and techniques over the years placed increased stress on fish populations. Commercial fishing has now been limited by many regulations which maintain present commercial fishing harvests below levels which will harm fish population.

3. Introduction of exotic fish species (in conjunction with fishing pressure and pollution of spawning grounds) has had the greatest impact on Lake Superior fish populations. Perhaps the most serious change in the fishery occurred when the sea lamprey worked its way from the Atlantic Ocean and up the Great Lakes depleting fish stocks on its way. This primitive, jawless fish attaches to the side of other fish with its suction-type mouth, rasps a hole in the side of the fish, and feeds on the victim's blood and body fluids. Lamprey literally decimated stocks of lake trout and whitefish in the 1950s. A chemical control program has since reduced lamprey numbers to levels where lake trout and whitefish can again become abundant.

Another recent addition to Lake Superior are smelt, also an ocean fish. At the same time smelt became abundant in Lake Superior, herring, which were the most abundant species, became scarce. Even though smelt abounded they never totally replaced the loss of herring.

Lamprey control programs, pollution abatement, fishing regulations and intensive fish stocking programs are all helping to reestablish commercially harvestable stocks of fish and creating a booming sport fishery.

Sea Lamprey



10. Why, in summer, do rivers in the southern part of the North Shore (such as Gooseberry and Baptism rivers) run more slowly than those in the northern part (such as Temperance, Cascade and Brule rivers)?

A. The headwaters of the southern rivers are not as large as those of the northern rivers. During the summer, the source waters of these southern rivers almost dry up leaving a small stream where a large river once was. The source waters of the northern rivers are located in the water-rich Boundary Waters

11. Who were the voyageurs?

A. The voyageurs, mostly Frenchmen from northern Canada and the Montreal area were a stocky, adventuresome, and proud group that often paddled their canoes 15 hours a day on their journeys. Each May, groups of voyageurs known as porkeaters (salt pork was a staple in their diet) would leave Montreal in flotillas of canoes which were filled with pots, pans, knives, guns, etc. to be used in barter. At the same time, another group of voyageurs known as northmen or winterers would leave the many wilderness trading posts which were spread throughout the N.W. in canoes filled with 90 pound packs of furs that had been trapped by the Indians the preceding winter and spring. Both groups would meet, or rendezvous, at Grand Portage in August to exchange their goods and to celebrate.

Though the work was often cold and dreary, the voyageurs were true adventurers. Generally maintaining good relationships with the Indians, since they desired to continue good economic ties with them, they learned a great deal about the wilderness from their Indian friends. Thus the voyageurs were some of the first explorers in the North Woods regions of Minnesota and Canada.



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