The Search . . . . I Never Said it was Going to be Easy.

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Chapter 2, Research Methodology

Research Objectives.

1. Find North America's Oldest Shipwreck.

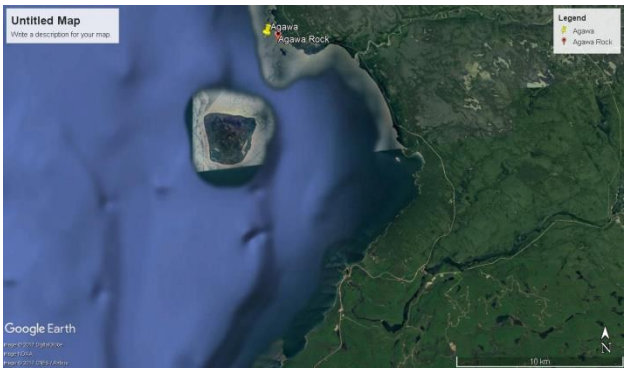
2. Survey water lots for submerged cultural deposition associated with existing terrestrial prehistoric sites and locate prehistoric ports and harbours.

3. Map out segments of prehistoric trade routes.

4. Conduct underwater archaeological investigations at pictograph sites to determine what was used as a "binder" in prehistoric paint.

From the onset it has to be recognized that even our best efforts with existing technology we may not find anything. For those of you who have been involved in efforts to find shipwrecks this project at least saves you from the hundreds of hours of historical research that is put into finding many shipwreck sites. In brief, the historical record does not shed a lot of light into the prehistoric in this case.

There is still much research to be done before anyone goes to the expense of getting a tank filled. Over a series of short papers I will outline and discuss a process we can use to increase our probability of success.



I have referred to this Google Earth image in the past as a high probability search area based on the criteria I have outlined. The mouth of the Agawa River and the

mouth of the Montreal River are shown. These are good locations for terrestrial, seasonal encampment sites. While I have never observed the feature personally, it is my understanding that there are Pukaskwa pits at Agawa. Agawa Rock is famous as a pictograph site and I have been there. While this area may be a good area to recce I have a funny little story that illustrates what happens if you rush to field work and go diving without adequate research.

Similar to Agawa the Nipigon Bay at the mouth of the Nipigon River meets many of the criteria that make it a good area to look for our ancient shipwreck. The Nipigon River mouth is a good spot for a seasonal encampment. The Pictograph site establishes prehistoric activity in the area.

While I have never looked at this area in terms of prehistoric archaeology I have done a couple of dives in the bay that illustrate my point. Over many years of operation the rail road bed has been modified. The curve in the track was at one time more acute, a sharper curve and this had caused problems. Long before I thought about archaeology I was diving with the Thunder Bay SCUBA club and into that group came the wonderful oral history story of the train wreck at Nipigon Bay. One version of the story was that a train had gone off the track and into the lake. The second version was that a number of box cars had gone into the lake and they carried Model T Fords.

This was long before Google Earth but we did have access to aerial photography and the club decided to make an effort to find the sunken box cars and Model T Fords. We were able to identify high probability search areas based on the bend radius of the track and direction of the train's travel.

If life has ever blessed you with the opportunity to wake up in Thunder Bay on an early spring morning, when the sky is clear and blue and the air is clean, crisp and full of promise you will understand the mood and great expectations we held as we set out that morning. Also, not being downwind of one of the pulp and paper mills in the morning can add greatly to the quality of the day for those with more sensitive olfactory organs and that day the wind was with us. Clearly, when the hearts of lesser mortals had turned to romance, in Thunder Bay, there was still a lot of time to go ice diving.

Working on the ice is an art in itself. Ross went up to the site, as he was leading the project and checked out the ice a few days before the dive. It was over three feet thick. Reading ice conditions takes a lot of experience and it is one of those things you really just do not want to mess up on. In this area at this time we had enough ice to drive a transport truck over and very little snow on the ice and a number of four wheel drive vehicles available. This is a good way to dive. You drive to your dive spot, set up a shelter and turn on a propane heater while you put in your hole.

We arrived in the area of Red Rock House and while we did have a four wheel drive truck with a snow plow very little snow removal was necessary to access the

ice sheet. We then drove to the area marked train wreck one and set up for diving operations.

We used several chain saws with very long chain bars and special chain saw teeth that go off at 45 degree angles, offset teeth, and as opposed to chain saw or chain bar oil, (that leaves a nasty stain on some dry suits) we would use vegetable oil or white vinegar. (Needless to say, overheating on the chain bar was never an issue.)

We set up a tent with a heater to change in and soon discovered our chain saw with the three and a half foot long bar did not touch water when plunged into the ice. A dry ice hole was excavated to that depth and then the last six inch thick block of ice was cut through with ice chisels. This is when we discovered the water was four feet six inches deep, despite the fact that we were several hundred feet off shore.

We then cut hole number two and were able to get into the water. The visibility was poor for an ice dive, five to eight feet. We searched along the base of the talus slope and at the end of our rope, (literally if not figuratively), as far south as we could get, we came to a railroad truck. In this case a truck is the assembly that four wheels are mounted on and it was upside down on the bottom.

We then cut hole number three. In case you are missing the comic value in the exercise, that is five hundred and eighty eight cubic feet of ice cut and a cubic foot of ice weighs 57.2 pounds, sixteen tons of ice we sawed up that day. But diving is diving. At this location we were able to locate another four trucks and suspected the fifth may have been buried in the talus slope. Very little of the box cars remained. These were very old wooden box cars unlike the steel ones in use today. It was also apparent that the box cars were empty when they went off the track and had rolled down the hill destroying the cars. Additional work on the rail line then covered most of the site with gravel as they widened the track allowance and modified the curve.

The point to my adventures in ice cutting, is that inadequate or partial research, in the least, makes for a lot of extra work on site. In fact, good research greatly increases your probability of success. A lack of local onsite knowledge also tarnishes your work. An early study of Pukaskwa Pits was made by E. F. Greenman, 1964 **The Pukaskwa Pits on Lake Superior**, American Antiquity 30:91-92. He held to the idea that Pukaskwa Pits were seasonally used semi-

subterranean dwellings used in association with ice fishing. He suggests there is merit in having skin divers investigate the water lot. It is an interesting theory but four feet of ice is hard to cut through with your stone ice auger or ice chisel.

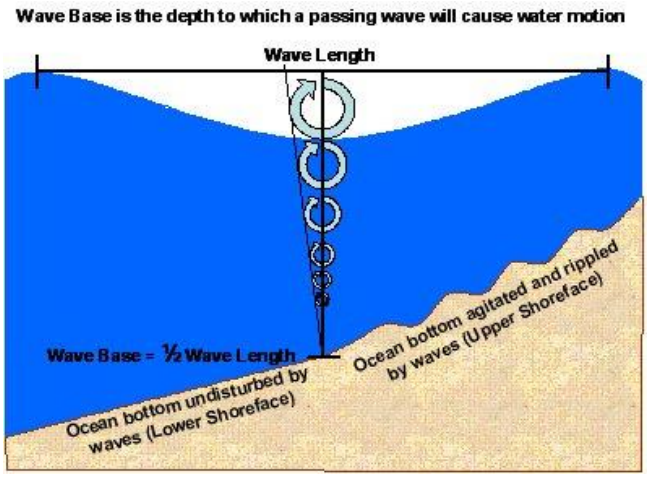
The method or process used by many archaeologists is to first look at the geology, geophysics, environment, the ecological system, climate, history and culture and then you're almost ready to start.

Geophysical maps, topographical maps, road maps, you can never really consult too many maps. On historical sites a trip to a map library to look at older historic charts and maps is always a good idea.

Unfortunately, despite my affection for maps, I cannot find a handy map to illustrate the problems associated with shore line erosion. While our ancient shipwreck could turn up in Lake Michigan, Lake Huron or a hundred different inland lakes I think the North Shore of Lake Superior is a likely place for a find. Almost the entire south shore of Lake Superior from Duluth Minnesota to Sault Saint Marie experiences shore line erosion. The notable exception is the Keweenaw Peninsula and other areas where the hard rock of the Canadian Shield meets the lake.

On the North Shore there is virtually no shoreline erosion from Duluth Minnesota to Sault Saint Marie. With the exceptions of, Thunder Bay, Black Bay and Nipigon Bay.

The water is some of the coldest in the Great Lakes and deep water with low oxygen content is usually close at hand. In this type of environment the type of deposition we are looking for can survive thousands of years. "Can," in this case is the operative word.



Divers who do a lot of shore diving are usually aware that waves modify the bottom and shoreline. The bigger the wave the deeper in the water column it reaches and can interact with and modify the bottom. When it comes to wave height on Lake Superior there are a lot of stories but nothing illustrates the nature of the problem like Battle Island Lighthouse.

Battle Island is located near Rossport Ontario at the top of Lake Superior.

Battle Island Lighthouse.

During a three day gale in November 1977, fifty foot waves hit the lighthouse washing up the building. The spray washed over the top of the lighthouse. The top of the lighthouse is one hundred and twenty feet above lake level. A window was smashed out and the lamp extinguished. A second large wave story is often told about Battle Island light. A large, heavy wood stove was used to heat the building. During a storm, a wave hit the lighthouse and the force of the impact moved the woodstove across the room.

The North Shore of Lake Superior is truly a place where an irresistible force meets an immovable object, the waves of Lake Superior vs. the hard igneous rock of the Canadian Shield. The terrestrial sites associated with Puckaskwa Pits are encampment areas close to the pits but down near the water on the beach. They lifted their canoes out of the water, carried them a short distance and then turned over the canoes for shelter for the night. The archaeological materials in the zone twenty feet above and below the air, water, interface has to be regarded as having been on fine grind for as long as the lake has been at this level 6,000 to 6,500 BCE. The twenty to sixty foot zones above and below the air, water interface has to be regarded as heavily impacted by wave action.

In addition to wave action ice greatly compounds the problem. Ice bergs are formed on the ocean when large pieces of ice break off glaciers and float free on the sea. While there are no glaciers on Lake Superior's shores, large masses of ice can still form. Lake Superior rarely freezes over completely. Depending on the weather there can be a lot of ice movement. Large sheets of ice have slow motion collisions and pressure ridges are common. Pressure ridges four, five or six feet high form. This of course means the ice is forty-five plus feet deep in the water under the ridge. As the lake breaks up the ice impacts with the shore randomly dependent on wind and this adds to the grinding effect associated with the air water interface.

Finding archaeological materials that have survived the millennia becomes a hunt for the sweet spot, the sheltered harbour protected by an Island or reef, in a bay perhaps, protected from the effects of ice, wind and wave.

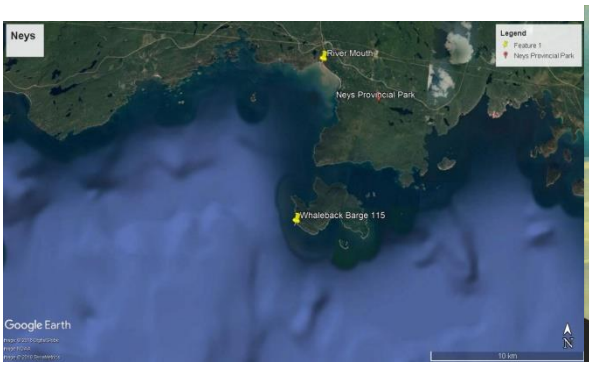
While I have mentioned a number of factors that any archaeologist would consider before getting a tank filled, the acid test involves good divers working with good archaeologists. The first on site mission is to find good dive spots as opposed to poor ones and this is something good divers do very well.

Most of the diving in 2018 is assessing and ranking locations for potential archaeological survey in 2019 and 2020. Other areas, such as Isle Royal are known archaeological sites with submerged components. A formal research proposal is being drafted, with the hope of field work in 2019.

One of the resource people who have taken an interest in the project is a Lake Captain. In 2020 we would like to find a vessel of opportunity, perhaps a work boat, something between sixty-five to one hundred and eighty feet in length which can accommodate many divers comfortably and manage a couple of zodiacs. We should have the opportunity to follow our trade route from the South end of Lake Huron through the locks to Lake Superior and along the North Shore to Isle Royale and do research along the way.

In a funny kind of way the non-archaeology dives are the fun part of the project. As mentioned in **Searching for North America's Oldest Shipwreck From a Low Earth Orbit**, The study area includes areas governed by The United States of America and Canada, the Provinces of Manitoba, Ontario, Quebec and the territory of Nunavut; the states of Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania and New York. Some of the study is in National, Provincial or, State Parks and my approach has always been to do my best to accommodate them all. As a general rule they are the principal beneficiaries of archaeological research so it is really just a matter of applying for licences and effective communication and doing good work.

The job is to go diving and preferably shoot some video and produce a standardized report evaluating diving conditions.



Neys Provincial Park is located near a Rail Road siding that was a prisoner of war camp in World War II. Near the river mouth there are several locations that have potential and worthy of a dive to be considered for archaeological research. As shown in the satellite image the river can dump a lot of silt in the lake leaving this long brown plume of dirty water in the area we are interested in. Late in the

summer in August there are often a few sunny days and a dry spell that greatly reduces the amount of water and the amount of silt being discharged into the lake.

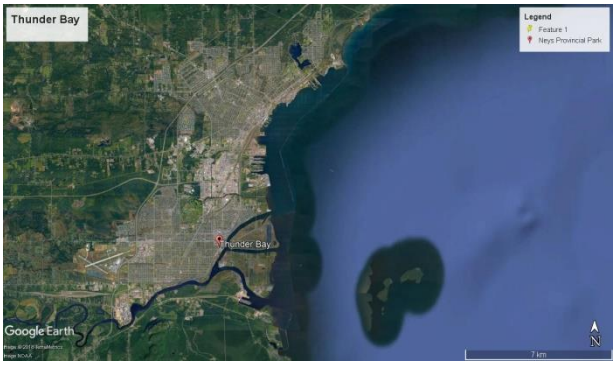
Pic Island, as illustrated in the Group of Seven artist Lawren Stewart Harris' painting **"Pic Island"** is close at hand and that is where Whaleback barge 115 wrecked in a December blizzard in 1899. This site receives little diver visitation and I think it is a great dive. In 1982 we put a little ten minute video together on Whaleback Barge 115. Just about all of it was shot on super eight but you are welcome to check it out.

https://www.youtube.com/watch?v=IGOSvJ7oCA4

Red Sucker Point has been discussed as there are sixty-five Puckaskwa Pits on the south and east shores of the point. Again, close at hand is the wreck of the Rappahannock 48° 48' 57.996" N, 86° 57' 31.23" W.

The Rappahannock is a three hundred and eight foot, steam powered wooden propeller that sank after a storm with seventy mile per hour winds and huge waves knocked the stuffing out of her. The vessel was so stressed and worked during the storm the caulking failed; the pumps were unable to handle the water and they were heading for the beach when it sank in 1911 with no loss of life. Jackfish also has an abandoned town site at a rail siding. This was a coaling station from a bygone age of rail when trains ran on steam and burned coal.

In many sites dive trips can be planned that allow the opportunity to recce a site we might have an interest in, but are close at hand to other features, like shipwreck sites that are fun dives and allow for additional research. Diving expeditions can be organized to check out diving conditions in high probability areas combined with diving the local wrecks. In this way you get some good diving out of the exercise even if conditions are poor at the proposed study area.



While many of the areas we will be looking at have seen very little human utilization since the prehistoric, other areas, like Thunder Bay and Duluth, continued to be used as harbours in the historic period through to present. In Thunder Bay you can easily see many of the criteria that overlap, the mouth of the Kamanistaqua River, known seasonal encampments and Puckaskwa Pits.

Also to be noted the City of Thunder Bay's outfall pipe from the sewage treatment plant. Numerous pulp and paper mills have operated here. Waste water discharge from paper mills usually carries a lot of chlorine which is used as bleach, and organochlorine compounds, several types of alcohol, solids, and nutrients and dissolved organic matter like lignin and chelating agents. Fortunately they rarely discharge mercury any more.

Other pollution includes PCB's and spills like Creosote, a carcinogen, in the harbour should also be considered, and while high probability areas like this should be checked out I think that work is best left to Parks Canada or the Provincial Underwater Archaeologist.