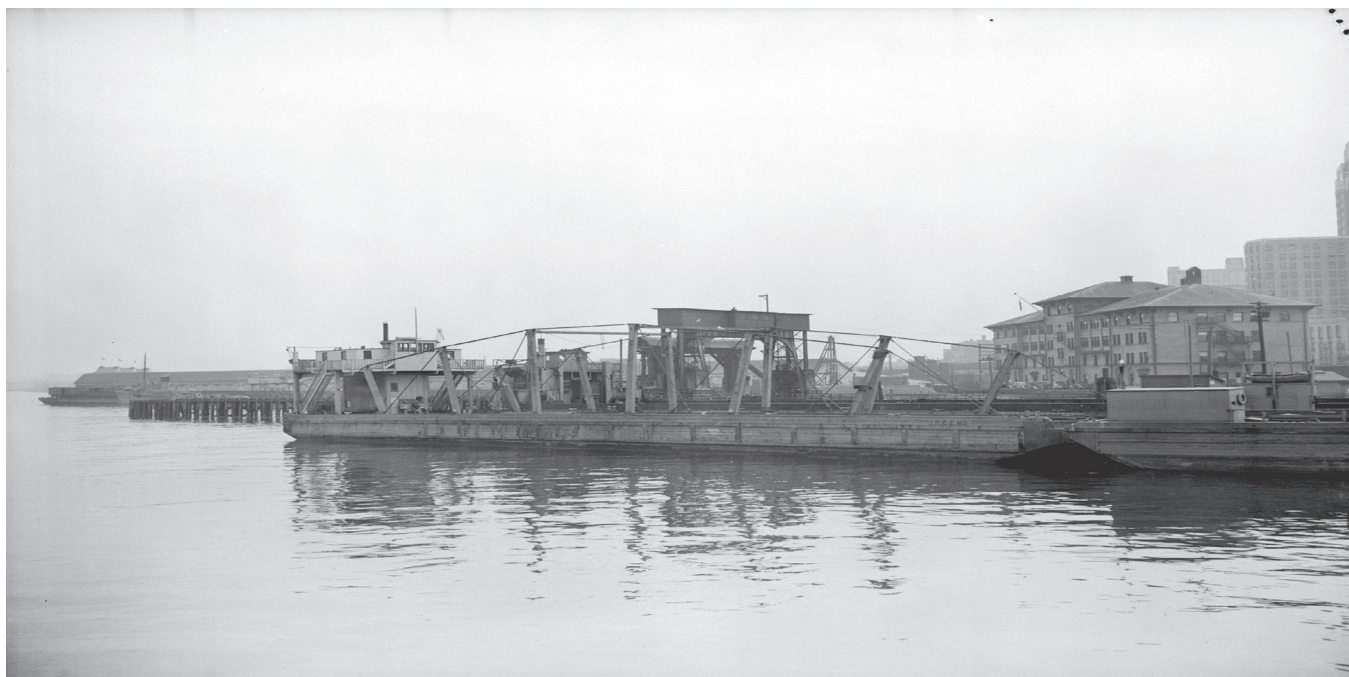




UASBC Revisits the Barge Wreck in Deep Cove, Saanich Inlet

By: Jiri Kotler

On an overcast Sunday morning (January 16, 2022) a group of UASBC divers assembled at the end of Setchell Road, Deep Cove. The group included Jacques Marc, Paul Spencer, Gabriel Hill, Bob Simpson (accompanied by Dorothy and Darby), George Silvestrini and Jiri Kotler. The plan was to assess features of the railroad barge wreck that could potentially be suitable for the upcoming underwater archeology for divers' course planned for April 2 and 3.

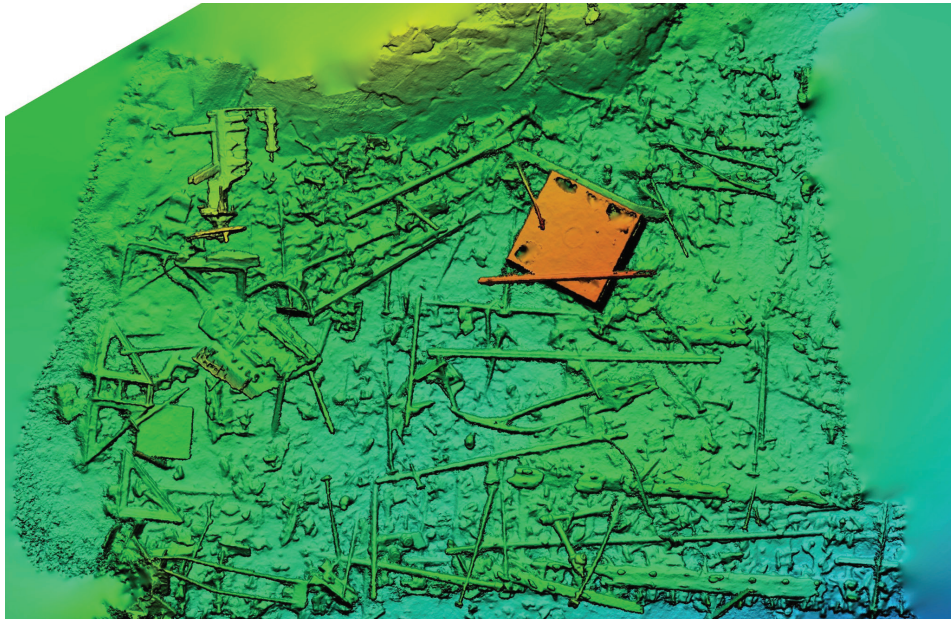


P.G.E No. 2 at Vancouver.

Image Courtesy of Vancouver City Archives

The wreck is located about 100 meters in an easterly direction from the rocky outcrop at the end of the road at a depth of about 17 meters (on a 3-meter tide). The wreck is a popular dive site and has been extensively photographed and documented (see 3D model image below).

Continued on page 2



Photogrammetric model of barge stern, including steering quadrant (top left) and large ballast tank (centre).

Image & Model - Ewan Anderson

By 0930 the group was ready and one by one everybody crawled into water. The unanimous choice was to follow a compass course and swim to the wreck site under water (there are several guidelines at the site, only one of which may lead to the wreck). High tide was predicted for most of the morning and light south-west current was observed around the rocky outcrop.

By 1030 everybody was back on the rocky outcrop, all having opted for the return trip underwater. The visibility on the wreck was about 5 – 7 meters (by consensus). The wreck site is a jumble of metal parts and remnants of the wooden hull. However, there are still a number of identifiable parts such as: steering quadrant with a rudder post; railroad tracks with supports and small tanks. Selecting suitable features for the archeology course may not be easy though everybody agreed that the remnants of a large ballast tank at the stern is the most prominent and easily identifiable object.



Left to Right: Gabriel, Bob, Paul, George, Jiri and Jacques.

Photo by Darby

The day was concluded with a group discussion at Tim Horton's in Sidney.

Shipwrecks 2022

Presented by: The Underwater Archaeological Society of BC

Maritime Archaeology on the West Coast

March 26, 2022

Day Session

Location: Royal Colwood Golf Club
629 Goldstream Ave. Victoria, BC
Registration 08:30 AM

Price \$45.00

Dinner & Woodward Lecture

Inside the Franklin Expedition: Exploring the Interior of HMS Erebus and HMS Terror

Jonathan Moore, Manager, Parks Canada
Underwater Archaeology Services

Location: Royal Colwood Golf Club
629 Goldstream Ave. Victoria, BC
No Host Bar 5:00 PM

Price \$60.00

Parks Canada Photo

Day Session Talks

Ancient Sea Gardens

John Harper, PhD, Marine Geologist

Reef Net Fishing: The Underwater Perspective

Ewan Anderson, Archaeologist

U/W Excavations and Resulting Finds in Esquimalt Harbour

Tom Bown, RBCM & Rob Field, RPCA,
Consulting Archaeologist

Historic Shipwrecks of the Southern Gulf Islands

Jacques Marc, Explorations Director, UASBC

Maritime Archaeological Society Activities in Oregon.

Scott Williams, President, Maritime
Archaeological Society

Drowned and Elevated Cultural Landscapes of Coastal B.C. Alex Lausanne, Parks Canada

To purchase tickets using PayPal visit

<http://www.uasbc.com>

For more information or to buy tickets in person email: josa@telus.net

Alternatively contact:

John (250) 743-4495 or Jacques (250) 474-5797

Vaccine Passport and Masks are required to attend.

Our Sponsors:



Please refer to WWW.UASBC.COM for tickets.

HMCS Mackenzie & SS Trebla Revisited

By: Jacques Marc

February 12, 2022 proved to be a very nice day for diving. On this adventure, the UASBC was set to visit the *Mackenzie* artificial reef and the SS *Trebla*.

The group met at the Tulista boat launch in Sidney at 09:00. As we carried our gear out to the end of the dock, Tyler Preston arrived in the charter boat *Inde* and was joined a few minutes later by Robert Borthwick who was to be the deckhand for the day.

By 09:30 we were loaded and ready to go. On this trip we had the usual suspects, George Silvestrini, Jiri Kotler, Paul Spencer and me. We were joined by Leila Bautista, Sophie Sanfacon and Melissa Lazeo. Unfortunately, Bob Simpson couldn't make it as he had experienced a COVID exposure earlier in the week. It took us about 20 minutes of running time to reach the Mackenzie, which is in the lee of Gooch Island. The HMCS *Mackenzie* was a Canadian Navy destroyer that was scuttled as an artificial reef on 16 September 1995.

It was slack when we arrived at 10:00 so we tied up to the mooring buoy and set up a deco tank at 3 meters as a precaution. Everyone hit the water within minutes of each other. Paul, Melissa, and I dropped down the anchor line until we hit the wreck at about 18 meters. The mooring is attached to the port side of the bridge. The underwater visibility wasn't great - maybe 5-6 meters - but with the sun it was reasonably bright on the wreck. From here we dropped down to the main deck and traveled aft until we got to the mortar bay. At the mortar bay we crossed to the starboard side and started back towards the bow, peering into a hatches and companionways along the way. At the bow we checked out the gun. We then spent some time exploring the superstructure and did a swim through the bridge. All open areas on the wreck are covered in giant barnacles and plumose anemones. I saw multiple huge Lingcod lying on the deck, with some guarding eggs. After 45 minutes it was time to surface.



Group photo onboard dive vessel *Inde*.

Photo by Robert Borthwick

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Our second dive was to be on the wreck of the *Trebla*. The *Trebla* was a 135 foot wooden-hulled cargo vessel that caught fire and sank in Saanichton Bay in 1923. She was built in San Francisco in 1868 as the *Santa Cruz* and operated as a combination passenger /cargo vessel in the Bay area. In October 1921 the *Santa Cruz* was purchased by Captain Albert Berquist of Victoria, BC and renamed *Trebla*. Captain Berquist had the vessel rebuilt by the Victoria Machinery Depot and re-powered with a 350 hp engine to operate as a combined tug and freighter out of Vancouver and Victoria. The *Trebla* sailed from Vancouver for Victoria on her final voyage with a large scow in tow on 10 May 1924. Captain Berquist decided to shelter for the night in Saanichton Bay. Around 9 o'clock in the evening a fire broke out in the engine room and raced into the deckhouse. The vessel ultimately burned to the waterline and sank at its current location.

We arrived at Saanichton Bay at noon and dropped a marker float on the wreck coordinates. Paul Spencer and I dove first. My goal was to get video of the boiler so that Ewan could hopefully generate a 3D photogrammetric model of it. Jiri and George followed collecting some missing measurements and marking the bow and stern for GPS coordinates. I found the wreck to be much the same as I remember it. The most noticeable change was the absence of frames defining the hull. Either the exposed frames rotted more, or the sloping gravel bottom has slid down slope covering the frames.

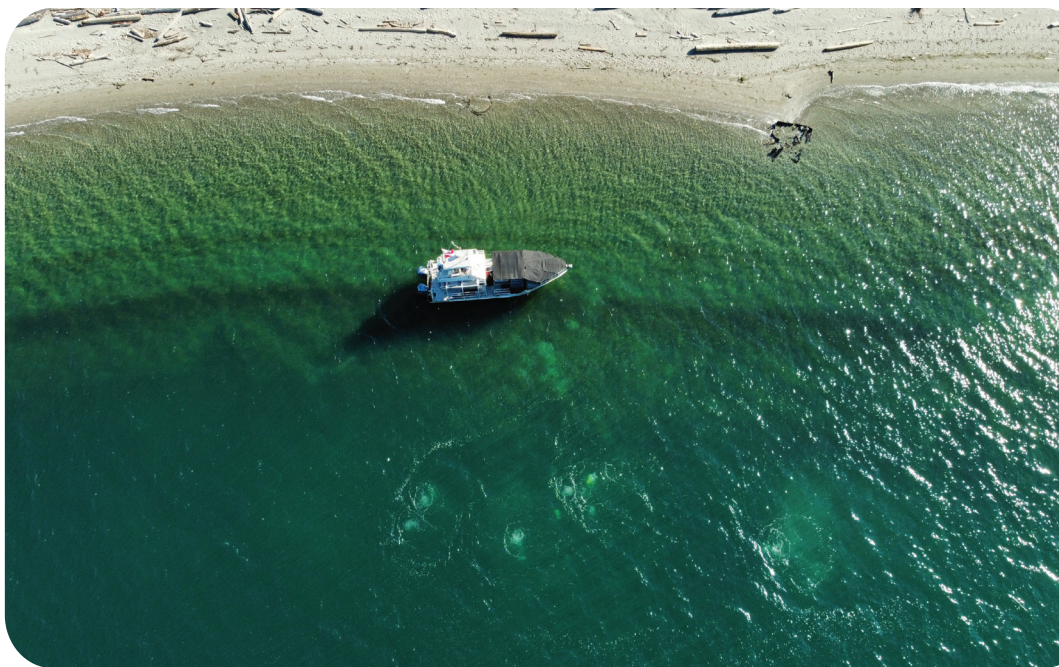


Paul Spencer on Trebla water tube boiler.

Photo by J Marc

Continued on page 6

While we were underwater Robert Borthwick who was assisting Tyler put up his drone and captured some almost tropical like photos of the Inde and divers in Saanichton Bay. This added a whole new dimension to the trip.



Diver bubbles are visible rising from wreck of Trebla.

Photo by Robert Borthwick

After finishing the photography Paul and I toured around the wreck and returned to the boat. Once everyone was aboard, it was a quick 15-minute run back to Sidney.

Thanks to Tyler and Robert for a great day.

The day wrapped up with a few of us visiting Tim's for coffee.

UASBC Presidents' message

March 2022

Hi Everyone,

Spring is almost upon us and the province is starting to open up after two years of Covid restrictions. Hopefully 2022 will be the year that the UASBC can start to return to more normal operations. Our first Shipwrecks conference since 2019 is scheduled for March 26 and should be a fantastic event.

Jacques Marc has planned a two-day trip to Barkley sound for April 9. I believe there may still be a spot or two open so if you are interested, please contact Jacques.



Keith Accepts Beaver Award at Government House

I had the distinct honor to accept the SS Beaver Medal on behalf of the UASBC at Government House in Victoria on March 17. We were originally informed back in early 2020 that the UASBC had been selected to receive a special award, however, the awards ceremony was postponed multiple times due to the pandemic. The SS Beaver Medal is awarded by the Maritime Museum of British Columbia and recognizes individuals and organizations that have made outstanding contributions to the marine sector in our Province. The award was presented by the Honourable Janet Austin, Lieutenant Governor of British Columbia and there were many of esteemed members of the BC maritime community at the event.

The Annual General Meeting is coming up on April 19 where we will review the results for 2021. We will also be electing 4 directors for a two-year term. This will be a Zoom meeting and meeting notices have been sent to all members with the meeting details. Please attend if you are able to. It would be great to have some new perspectives on the board, so if you would like to get more involved with the management of the Society, please let me know.

After two years I am really looking forward to getting back to in person events and hope to see you all soon.

All the best
Keith Bossons
UASBC President
(keith@Bossons.ca)

A History of the Upper Arrow Lake Searches and Recent Finds

By: J. Pollack, H. Bohm, S. Adams, K. McGuinness, B. Meekel and R. Spencer

The upper and lower Arrow Lakes hold a unique place in the history of BC's inland marine transportation. Part of the Columbia River system, originally these fjord-like lakes were joined by a narrows, and steamboats could traverse the river from the US border through the lakes to the Big Bend north of Revelstoke. In 1896, a 40 km spur was run from the CPR's transcontinental rail line at Revelstoke, south to Arrowhead, creating a railhead for a sternwheeler and barge link to the southern CPR mainline 190 km south at Castlegar. Arrowhead became a major pioneer town with both a lumber mill and the railhead where trains were loaded onto 8- and 15-car barges, and passengers onto stern-wheel steamboats. This integrated rail-water route serviced Castlegar, Nakusp and the now-vanished lumber towns of Compalix and Beaton on the NE Arm (Figures 1 and 2).



Figure 1. General Locations – Upper Arrow Lake (GoogleEarth)

Continued on page 9



Figure 2. Arrowhead townsite with tracks and sternwheeler circa 1910 (BCARS H-06880).

The northern end of the upper Arrow Lake is unquestionably the most difficult area for underwater archaeological work in the West Kootenays. The Arrowhead–NE Arm region of the lake is a wild and remote place framed by cliffs, mountains and glaciers with deep winter snow, bad storms, and occasional road closures due to avalanches. The Keenleyside Dam further complicates boating and diving, as it raised the level of the Arrow Lakes in 1968 and now creates 12-15 m seasonal water-level fluctuations.



Figure 3. The rugged NE Arm (McGuinness 2021).

It is not surprising the area is the final resting place of century-old steamboats, and historians Ted Affleck and Milt Parent noted the demise of no less than 8 large vessels in northern end of the lake. Local UASBC exploration began in February 1991 when Ron Spencer and John Pollack used a small inflatable to make the 45 km round trip up the NE Arm to the former sites of Arrowhead, Beaton and Comaplix. These early efforts led to numerous 1990s UASBC trips, the mapping of

A History of the Upper Arrow Lakes(continued)

the 1911 202-foot iron-hulled super-sternwheeler *Bonnington* at Beaton, and the location of scattered machinery and the boiler from the 1902 127-foot sternwheeler *Revelstoke* near Comaplix. The remains of the historic steam tugs *Whatshan*, *Yale*, *George F. Piper*, the hulk of the sternwheeler 1897 183-foot *Rossland*, and the burned hull of the 1895 171-foot sternwheeler *Nakusp*, were never located.

One legendary vessel was the 1898 162-foot composite-hulled sternwheeler *Minto*, which was burned and scuttled at Galena Bay on the eastern shore of the lake. We expected locating the vessel would be easy, given images of the hulk burning in Galena Bay in 1968 with good background lines-of-sight. In the early to mid-1990s several UASBC searches were organized and led by sonar experts from Kongsberg Simrad Mesotech and SFU's Underwater Research Lab using both directional and towed sonars. They found nothing and we only learned why a decade later, when the hull of *Moyie* - *Minto*'s sister ship - was mapped in detail. The composite hull was divided into numerous watertight compartments, and likely unsinkable in a fire. This tallied with a secondary account describing how *Minto*'s smoldering hull floated around for hours before it was rammed repeatedly by a small tug to sink it. At that time no photos had been found of *Minto* actually sinking. So where was it?



Figure 4. *Minto*'s final plunge and line-of-sight (BCARS D-01389)

Two decades passed, then a photo of the sinking was catalogued at the BC Archives, showing the ship's "final plunge" with a good line of sight in the background. Adams and Pollack had recently purchased a shallow-water, professional side scan system - a STARFISH 452F CHIRP unit - and in 2013 with Bohm, Spencer and McGuinness, they began a series of eight separate side scan surveys in Galena Bay. The STARFISH had higher resolution than previous units, and was successfully locating new historic wrecks at Nelson and Sandon BC, down to 170 feet. By this time the ad hoc team was supported by two organizations - annually the Institute of Nautical Archaeology and periodically by the UASBC.

Finding *Minto* should have been easy, but it was not. Galena Bay was repeatedly surveyed down to 200 feet without success, and it was established the wreck was not in shallow water. One curious target was dived in the spring of 2018 by Bill Meekel's UASBC team, but it turned out to be a phantom image.

The next evolution of the search was Harry Bohm's bold decision to invest in a state-of-the-art Marine Magnetics

A History of the Upper Arrow Lakes(continued)

Explorer magnetometer with a 70 m cable, which could scan deeper than the STARFISH and should be able to pinpoint the hundreds of tons of iron and steel used in *Minto's* composite hull. The downside was magnetometry was a true “dark art” with a very steep learning curve. Within a year we were running mag, side scan and bathymetric mapping surveys simultaneously out of a 14 foot inflatable boat. The surveys generated large data sets and required post-processing on EXCEL and SURFER mapping software. The standing joke was our \$1,800 garage sale boat now held electronic gear worth over \$50,000.



Figure 5. Harry Bohm with the Marine Magnetics towed magnetometer and pole-mounted Starfish side scan sonar in a Mercury 4.3 m inflatable (Pollack 2020).

Again, it should have been easy but the ship was not located within the bay in spite of “magging” it several times down to approximately 300 feet. Finally, in June 2019 a “Hail Mary” survey of the deep water at the far western end of the bay yielded a faint magnetic anomaly signal at 570 feet deep. The magnetic anomaly was on the line of sight for the sinking photo, and there was a large target visible on the depth sounder. However, confirmation was going to be a further challenge – it was slightly deeper than the *Edmund Fitzgerald*.



Figure 6. *Minto* sonder target at 570 feet depth (Pollack and Bohm 2020).

Harry’s solution was to spend the winter in his shop assembling a surface-supplied drop camera using a stainless-steel underwater housing, a CCD camera, two high intensity dive lights, and 860 feet of cable on a slip-ring reel.



Figure 7. Bohm's First Generation Drop Camera (Bohm 2020).

We returned in June 2020 and recorded over 5 hours of video on the site before the dive lights “whited out” the CCD chip due to the reflective bottom. Wreckage, a rail, a hatch, framing and a possible hog post were observed but everything was largely buried and shrouded under a deep layer of silt. Harry decided better quality cameras would be worthwhile, and over the next winter built two completely new units with higher resolution cameras and flood lighting, but with limited run-time due to on-board batteries. In September 2021 another 3 hours of video were captured. Unfortunately, the fall silt conditions were worse than in 2020, and the high-resolution recordings could have been taken in a blizzard. It was now clear why so much of the site was deeply buried.

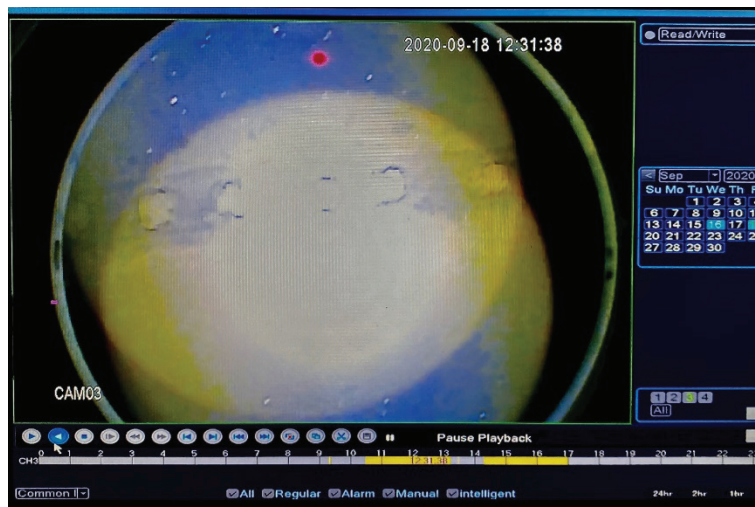


Figure 8. Deeply buried frames at 570 feet depth (Bohm 2021)

We cannot be 100% positive the target is *Minto* but the evidence is strong. There are definitive magnetic / depth sounder targets on the right line of sight, we have scattered wreckage and frames, and the magnetic anomaly mass is 200-800 tons

A History of the Upper Arrow Lakes(continued)

of iron. A deep water ROV would be the next logical step, however the historical detail is not worth the cost given sister-ships *Moyie* (Kaslo BC) and *Tyrrell* (Wes Dawson, YT) have been fully documented in more detail than could be obtained on *Minto*.

So, we are done with *Minto*. Fortunately, there are other excellent possibilities in Upper Arrow Lake, and after operating at 570 feet deep, none of them seem that difficult. In June 2019 Bohm and Pollack located a large magnetic anomaly in shallow water at Arrowhead that may be associated with either the sternwheeler *Nakusp* or more likely the steam tug *George F. Piper*. More recently, after the Sept 2021 drop camera effort, Bill, Harry and John ran to Beaton and Comaplix in Bill's boat, where Harry conducted magnetometry surveys at Comaplix in search of the unsalvaged portion of sternwheeler *Revelstoke*, as well as at the Beaton landing, where the steam tug *Yale* lies. Post-processing of the data revealed two large magnetic anomalies. Rather than wait for spring, McGuinness and John returned ten days later to sidescan the magnetic anomalies and brought along a 30 m drop camera.

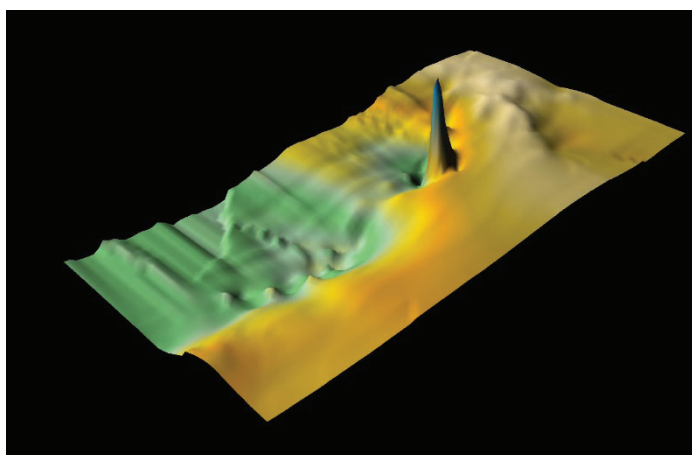


Figure 9. Comaplix mag target. The height of the peak indicates a concentration of iron or steel (Bohm & Pollack 2021)

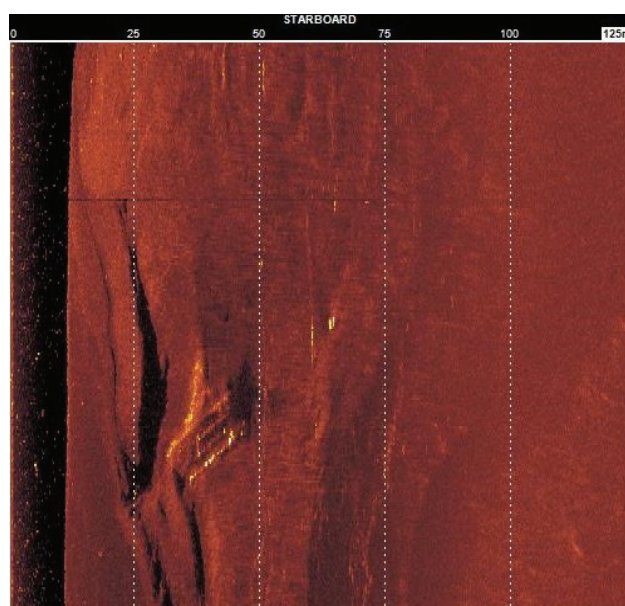


Figure 10. Beaton side scan target, confirmed with drop camera. (Pollack and Bohm 2017/2021)

Continued on page 14

A History of the Upper Arrow Lakes(continued)

This final 2021 effort confirmed the side scan image coincided with the strong Beaton magnetic anomaly, and the drop camera disclosed a complex site with barge hull debris and what is likely a boiler in a hull. The depth and position of this wreck do not match the historic accounts of the loss of *Yale*; more likely this is the steam tug *Whatshan*, possibly associated with a barge, or a barge carrying steel cargo. A second smaller and deeper (33 m) magnetic anomaly also displayed sonar structure. While a better candidate for *Yale*, but we could not quite reach it with our small drop camera for verification.

The strong Comaplix magnetic anomaly also showed a distinct 3D side scan image, however atrocious visibility at 22 m blinded the drop camera. The Comaplix side scan also pinpointed the location of the now submerged Comaplix wharf, where *Revelstoke* burned in 1915.

In conclusion, the Upper Arrow Lake has required persistence and new technology, but after 30 years of searches and dives, we appear have settled *Minto's* location using an innovative combination of high-end technologies out of a very small inflatable. Also confirmed is a new historic wreck at Beaton, and three additional magnetometer/side scan prospects at Arrowhead, Beaton and Comaplix. These latter targets represent large tonnages of iron near known casualty sites and may hold a few surprises in diveable depths. The spring of 2022 should be a good year for UASBC divers on the Upper Arrow Lake and perhaps we'll see more than one new site.

Suggested Reading:

Affleck, E.L. 2000. *A Century of Paddlewheelers in the Pacific Northwest, the Yukon and Alaska*. Alexander Nicolls Press, Vancouver, B.C.

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Pollack, J., Moffatt, S., Turner, R., Woodward, R. and Adams, S. 2014. Hidden In Plain Sight: The Composite-Hulled Stern-wheel Steamboats of Western Canada, in C. Dagneau and K. Gauvin (eds.), *2014 ACUA Underwater Archaeology Proceedings*, 371-381. Quebec City, Quebec.

Please refer to WWW.UASBC.COM for updates.

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