The MASIK

Safety Tips, Music Hits, A Printed Kayak & More Inside

In this issue:

Fall Winter 2022-23 | QajaqUSA.org

LETTER FROM THE PRESIDENT

Fall colors are appearing across the country, and it's easy to settle into crisp air, even crispier leaves, warm beverages and cozy slippers. It's also the time of year to soak in the season while paddling around a fall-inspired lake or enjoying cooling temperatures on a vast ocean.

It's hard to write anything nowadays without bringing up Covid, but that word is being used less and less, and more and more social gatherings are taking place. People seem to have renewed hope, and a recent tourism study showed that many people are feeling comfortable enough to transition into pre-Covid travel routines in 2023.

The Qajaq USA Board of Directors met recently, and it was wonderful to chat about paddling. Thank you to the Qajaq USA sanctioned event organizers, mentors and participants. In addition, the Board of Directors voted to make all Qajaq USA past presidents Honorary Members. The Board would like to thank Greg Stamer (Qajaq USA's founder and its first president), Ed Zachowski, Terry O'Malley and Christopher Crowhurst for their service.

Do you want to get more involved with Qajaq USA? Perhaps there's a committee that interests you; or perhaps you're interested in an Advisor or Board position. The Qajaq USA Board of Directors is looking for volunteers. If you have the time and desire to become more involved with Qajaq USA, then please get in touch. Along those lines, if you have questions, comments, ideas, etc., then please reach out.

Thank you again, and enjoy the fall!

Helen Wilson
President, Qajaq USA
president@qajaqusa.org

EDITOR'S NOTE

In this issue you'll find reflections by inveterate kayak makers on how and why they caught this disease. I feel their pain.

Anybody who's made much of anything often comes to a realization: it might have been easier and possibly cheaper to buy it. And yet…

There I was in my basement, 20 years ago or so, attempting to decode the often confounding instructions for building a skin-on-frame kayak as set down in the then-sacred text, Building the Greenland Kayak, by Christopher Cunningham.

I was jammed into a slot between the limestone walls and the boiler, wearing a stocking cap, a heavy coat and insulated boots, this because in my Minnesota home, the basement temperature hovers around 50 degrees in the dead of winter. Mostly I didn't notice, since I was preoccupied by my attempts to turn Cunningham's directives into something resembling a kayak.

I had only a vague idea of what I was doing, and knew of no one nearby who could offer insight. Nonetheless I blundered on. In the end I had a kayak that I paddled for a short while and sold for a few hundred dollars. Someone else enjoyed the easy path — he bought a finished boat for something approximating the material cost, with none of the mind-bending need to figure it all out. And I started on another.

I'm not sure how many kayaks and baidarkas I've built since then. A couple dozen, I think. They're out there somewhere, most of them sold for ridiculously low amounts in order to clear out shop space.

The obvious question here is, what is the ongoing appeal? Do I not sufficiently get the joke by now?

A lot of the impulse came from my mother. She was a talented seamstress, but she also knew how to toss up a concrete block wall in a pinch. Her father made knives and saws, had a smokehouse out back, and butchered hogs for the neighbors. My dad was a mechanic.

They had tools, but also attitude. They weren't going to throw away money on things they could make themselves. But, also, I think, in the era before most people saw the hand of The Man in so much of everything, they sensed that The Man was there and did what they could to slip out of his clutches.

There are days when I am thankful, and other days — say, while staring at a pile of plumbing fittings — that I realize I should not always be so arrogant as to forego the skills of trained professionals.

But we are who we are. For better and worse, it is so hard to escape.

RECOMMENDATIONS

Sounds from Beyond: Interested in music that seem to come from a different dimension? Check out this recently republished New Yorker magazine story on Tanya Tagaq, the Inuit throat singer from Yellowknife in Canada's Northwest Territories. The sound of her singing resists description, though writer John Seabrook takes a shot at it. "Guttural heaves, juddering howls, and murderous shrieks," he writes. Put your own ears to work with this YouTube video of a 2019 Tagaq concert at the Kennedy Center.

That Shrinking Greenland Ice Sheet: You're probably not looking for more dismal climate news, but here's the latest from research on Greenland's melting ice. If we immediately stop burning fossil fuels, sea levels from the shrinking sheet will raise sea levels by at least 10 inches, according to research published recently in Nature Climate Change. That's more than double from previous estimates, with potentially catastrophic consequences for low lying coastal areas world-wide. Read the New York Times story here.

A Pile of Paddling Podcasts: Here's another podcast to add to your list. Paddling the Blue — described by impresario John Chase as "sharing stories from people doing great things related to paddling" — recently featured Qajaq USA founder and long-time president Greg Stamer in an hour-long session. Hear him talk about Greenland-style paddling and gear, his Newfoundland expedition with Freya Hoffmeister, and a note on two camp foods that most reasonable people would not pair. Listen here.

Additional note: don't forget about the Dubcast, Dubside's weekly podcast. A recent episode featured a live broadcast from the Traditional Paddlers Gathering in northern Minnesota.

Your Electric Car, Greenland's Rare Earth Metals: Rare earth metals are key components of electric car motors, wind turbines and smart bombs. Greenland, a source of those metals, is now the focus of mining and processing efforts as companies hustle to find supply chain alternatives in the aftermath of Russia's Ukraine invasion. This is a market that China has by-and-large owned, but a Toronto-based company, Neo Performance Metals, is edging into the business by buying up mining rights in Greenland and establishing processing facilities in Greenland and Estonia. Previous efforts to set up mining operations in Greenland have been met by pushback from Greenlanders with environmental concerns. Learn more in this New York Times story, A Supplier of Rare Earth Metals Turns to Greenland in a Bid to Cut Reliance on Russia.

So Much Depends On… The Freezer: Who ever said that subsistence living was simple? The New York Times explores Alaska's freezer problem in the story, Climate Change Comes for the Freezers, a Key Tool for Alaska Natives. Climate change means that permafrost no longer provides a reliable natural freezer. The alternative for storing food harvested, fished and hunted is electric-powered

RECOMMENDATIONS

freezers. Good idea, so long as increasingly violent storms, also brought on by climate change, don't disrupt your power plant. Prolonged interruptions can put a year's supply of food at risk in remote villages where a quick trip to CostCo isn't an option.

One resident recounted a recurring nightmare about returning from a trip to the smell of rotting food. Her son, interpreting the dream for her, said, "Well there's two parts to that nightmare. The first part is cleaning out the freezer and that's terrible. But the worst part, the heartbreaking part, is having to throw away all that work and all of those animals that gave themselves to you."

The Far North Via the Ivory Tower: If you're on the hunt for academic treatments of Greenlandic culture and history, take a look at Academia, an aggregator of research papers related to, among other subjects, life in the far north. A few of the treatments you can find there are these:

Walrus: Cool with the Little Ice Age.

The Lost Western Settlement of Greenland, 1342, a study of the reasons behind the Norse departure from Western Greenland for the new world.
In the Light of Blubber: An examination of the earliest stone lamps in Greenland and beyond. The paper explores fire-making, light and heat in the eastern Arctic.
Intimate Clips: Sealskin Sewing, Digital Archives, and the Work of the Mittimatalik Arnait Miqsuqtuit Collective. An appreciation of the sewing skills of women at the Canadian Eastern High Arctic Inuit settlement of Mittimatalik and a description of the digital recording and archiving project that captures this work.
Wood use and kayak construction: Material selection from the perspective of carpentry. A consideration of the value of different types of wood to the native kayak builder, comparing constructions techniques and tools in different periods.
The Atlatl and the Dart. An in-depth look at the complexity and design considerations of this essential part of northern hunting systems.
Norse Greenland Settlement: Reflections on Climate Change, Trade, and the Contrasting Fates of Human Settlements in the North Atlantic Islands: The end of Norse Greenland might not be symptomatic of a failure to adapt to environmental change, but due to successful economic developments of Norse communities across the north Atlantic.
At the edge: High Arctic walrus hunters during the Little Ice Age: Low temps and more ice meant easier travel to hunting grounds packed with walrus.

Danish TV Series Focuses on Greenland: Borgen is a compelling fictional political drama that describes what happens when valuable natural resources are discovered in Greenland. In the case of this series it's oil, but the real-world equivalent is mining for precious metals, a current source of tension within Greenland. The discovery sets off a scramble, as Greenland officials take the sudden potential influx of wealth as a chance to break from Denmark's colonial hold. The Danish government thinks

RECOMMENDATIONS

otherwise, and would prefer to keep it's own hand in the till. Before long the Chinese and US governments are horning in with their own geo-political considerations. It's TV, so in addition to machinations by government officials, you're also in for a dose of love gone right and wrong, local architecture and the awe-inspiring scenery. Available for streaming on Netflix.

Getting Greenland Kids in Kayaks: Recently Brian Schulz, the owner/operator of Oregon's Cape Falcon Kayak, got a message from an East Greenland school teacher, Max, in the village of Tiniteqilaaq. Up until the 1990s, locals had hunted for narwhal from skin-covered kayaks. But the kayak-building tradition had been lost. Max wanted to help his students reconnect with their history by building kayaks and learning paddling skills. Having found Schulz on the internet, he asked for help.

Schulz stepped up, providing free kayak plans and shipping off boxes of tools, building supplies and gear. None of it was cheap, since transport to the tiny village involved planes, a helicopter and finallly a dog sled. Shipping a simple thumb drive filled with kayak plans cost $75. A 30-pound box comes in at about $400.

Once the kids had built a small fleet of East Greeenland-style kayaks, the Greenland Kayak Association urged Max to start a club and compete at the national championships.

Given the expense of transporting a passel of kids across Greenland, Schulz interceded again, firing up a Go Fund Me campaign with a goal of raising $15,000. With 215 donations, the campaign brought in over $16,000.

You can still donate to this effort by contributing via Go Fund Me. When Schulz answered the phone recently, he said he was busy packing up more boxes with power tools, dry suits, rib stock and more. Your donation can help pay for both supplies and the extravagant cost of shipping. Find the campaign site here.

Isolated Enough? Top, the village of Tiniteqilaaq. Below, a local youth expanding the village club's fleet of kayaks.

Mind of the Maker

Buy it? No way! They've got to make it themselves

It might start with a Greenland paddle. Next thing you know, you're building a qajaq. Then another and another. Your spouse, your pals — they wonder what's snapped. How many kayaks does anyone need? You ignore them and ask instead, why not put together a tuiliq, or fashion a harpoon? Maybe a baidarka instead of a Greenland qajaq next time. Raising the question: Why do makers make? The Masik asked three prominent builders, What got into you?

How I Got Started
Q&A with Chuck Smith

What started you out on being a guy who makes things?

I had hard-working parents. They were working so hard that I was raised by my grandparents. My grandfather built things.

Like what?

Anything you can think of! He built the second story on his house. He built a seven-car garage across his entire backyard so he could build house trailers. He couldn't afford Airstreams
Smith, Page 9

You Don't Know What You're Missing
by Christopher Crowhurst

For many people it is easier, and perchance more desirable, to visit a shop and buy a pre-made kayak, trading money for an object. Perhaps masked by a fear of their unknown abilities, or the incomprehensible missed opportunities, or maybe just simple slothfulness, many people have no idea the pleasure they are missing out on.

For me, the experience of kayaking is incomplete when afloat in a product of another's hands. There is an ethereal connection, a bond formed between maker and craft, hand and paddle, body and water. This only exists when the craft is the fruit of your own labor. My
Crowhurst, Next Page

First It Was a Paddle
Q&A with Sipke De Boer

How did you get started making all this Greenland-style gear?

I met Renee DuFresne, and she was into the Greenland stuff. She said, 'This is a lot of fun.' But I thought, no, I just learned how to use the Euro paddle I've got. You know how it is when you're starting out. I tried the Greenland blade. If you don't know how to do it at first they shake in the water. But I kept at it, and finally I thought, well, this is pretty good.d
I started reading Harvey
DeBoer, Page 11

MIND OF THE MAKER

Crowhurst
relationship to nature is never closer than when I feel the flex of the hull I built as it rides the waves of the sea I am afloat upon, as when I feel the water part as the paddle I carved slices into the catch of my stroke.

The craft of kayak building is an amalgam of history and art. Building upon the designs and methods passed on by millennia of Inuit, I hue beautiful craft from the simplest of materials, occasionally using a modern tool or material. I carry on their traditions, adapted to my needs and circumstances. I innovate at the edges, paying homage to the origins, yet allowing the state of art to improve upon but never distract from the outcomes.

I share with all makers the common desire to learn and improve upon oneself and our outcomes. The first craft leads to the second, modified with the knowledge gained, the experience won. It is rare to find a builder of just one kayak.

Each craft is unique — a transmogrification of initial plans to suit my body, my style of paddling and intended conditions. The width, the freeboard, the length, the deadrise, so many variables customized. The Inuit knew the necessary uniqueness of each qajaq they built, gauged by fists, cubits, and arm spans. Now I follow with a metric tape. There is little risk involved in buying a kayak. You know it won't fit you perfectly, but it will be okay, and perhaps you can adjust it to be comfortable. Maybe you will get lucky, and it really will suit your weight and gear, wind and wave conditions. Or perhaps not.

Professor David Pye in his seminal book The Nature and Art of Workmanship would call our craft building the Workmanship of Risk, contrasting with Workmanship of Certainty, which characterizes modern commercial kayak building. Buying a manufactured product, the outcome of Workmanship of Certainty is not risky. It's easy. Easy if you are satisfied with the mediocrity found at the intersection of the lowest common denominator of market forces and wallets.

Building for me is a creative venture, an avenue to explore my own concepts, skills, and desires. The outcome will inevitably simultaneously delight and disappoint. I, the maker, will see the imperfect, the room for improvements. My witnesses will see the beauty and the potential. Just like imperfections of human nature, the nature of building is perfectly imperfect.

"The man who works recognizes his own product in the World that has actually been transformed by his work: he

That skin-on-frame: Chances are you could buy it from somebody else for about the cost of materials. But would it make you happy if those weren't your bloody fingerprints on the gunwales?

recognizes himself in it, he sees in it his own human reality, in it he discovers and reveals to others the objective reality of his humanity, of the originally abstract and purely subjective idea he has of himself." – Alexandre Kojeve.

I discover a great deal about myself when building kayaks. The insular, cerebral hours spent engrossed in the repetitive craft provide endless introspection and moments of healing. Each monotonous stroke of the plane, each caress of the brush, become a mantra for my hours-long meditation.

Like many outlets, the edge between addiction and creativity is present. Twenty kayaks later I should check myself into rehab.

P*ostscript: I joined the Qajaq USA board as an advisor about ten years ago. Eight years ago, with the help of Terry O'Malley and Dan Segal, I was elected to the Board of Directors and became the Events Director. During my tenure I have filled many roles, including Secretary, Web-master, Membership Director, President, and finally Past President. The past decade has seen the Board and Members accomplish great things; new events, new website, expanding the fleet, growing the membership. I have enjoyed every minute of helping this organization, however I have decided that now is the time to step down, so that I can make way for talent and enthusiasm of others. I will continue to support the organization and its events. I hope you will consider volunteering your time to this tremendous organization and help it to continue its mission. I look forward to seeing you in Minnesota at Qajaq Camp or any one of the other great Qajaq USA sanctioned events around the country. Paddle on*.

Smith

but he could build something like them. He built seven of them over the course of his life. Some of them were 40-feet long. Once he knew what he wanted the next one to be, he could sell the previous one for enough to pay for the new one.

Sounds a lot like building skin-on frame kayaks.

Frankly it's exactly the same. The apple didn't fall far from the tree.

What's the first thing you remember making?

Probably kites. A couple of couple sticks of holding some newspaper or cloth together. Maybe I was four years old.

As I got older we fixed whatever we had. We couldn't really buy new stuff, so we fixed what we had. That led into fixing boats, cars, whatever. If I wanted something I could buy it or I could build it.

Next Page

Smith
Usually I'd end up building it, whatever that something was.

Give me some examples.

We ended up moving out on the water and couldn't really afford decent boats. So we'd buy a couple of motors for $25 off a scrap heap. Eventually we have three or four motors sitting there with enough parts to make one run. They weren't necessarily the right parts, but the motor would run for a while.

In a few weeks we'd have 25 bucks to buy another motor that we'd scavenge for parts. I learned how to be a mechanic and how to keep the water on the outside of a boat. Mostly.

Sounds like you had more access to tools than a lot of kids might have.

My grandfather had a good pile, and my dad had a pretty good pile, and some of the neighbors had awesome piles of tools and materials.

How did you get started on Greenland kayaks?

In 19999 my dad called me and said, 'Hey, do you want to build a skin-on-frame kayak with me and our friend Mike? Chris Cunningham had just published book his book (Building the Greenland Kayak) so my friend bought a couple copies. My first question was, 'What's a skin-on-frame kayak?'

My buddy Mike and I had some woodworking experience. My dad had none. But the three of us were going to go to Mike's basement for the entire winter to build, as far as we knew, the first skin-on-frames in Southeast Michigan. Some evenings we'd spend an entire three-hour evening arguing over the directions on the book and never touch a tool.

How long it take you to get those first kayaks done?

Our guess is about 100 hours. More than half the time we spent scratching our heads, and a quarter of the time trying to figure how to make the jigs and tools.

Once you were done did you take your boats out and paddle them right away?

My dad and I are — for lack of better term — not so smart. So it's early March in Detroit. I own a shrink wrap company, so we wrapped the kayaks and then asked, where is there liquid water? We drove to Port Huron, Michigan, to the St. Clair river. It has a very heavy current, but there are protected areas where the ice isn't constantly coming down at you. We're scuba divers, so we got into our dry suits and got ready to go. As soon as we pulled into the parking lot another car pulls in behind us. It's a reporter for the local newspaper. So on our first paddle we end up on the front page.

How were the kayaks on water?

The kayaks were very wiggly. We expected that. We knew we were building performance kayaks. We knew our skills would have to grow into what we built. We didn't come up with any tweaks we wanted to make, so we skinned the kayaks and again, being part of the not super smart crowd, we decided to do one of our usual paddles down the St. Clair river, which is about a three or four hour paddle. No take outs, no Plan B. It could could have been thought through better. By the end of the paddle I was sitting on everybody's butt pad and every stroke felt like someone was beating me across the abs with a baseball bat. It hurt. I didn't have the muscles then to do it.

Next Page

Smith

How long before you built another?

Maybe a year or two later. I belong to a kayak club. We were going on a camping trip to Manitou Island on Lake Michigan. A friend watched me take my skin-on-frame, throw it on my head, walk a quarter mile and then throw it on the second deck of the ferry boat. And she said, 'I need one of those. I've got this 70 pound plastic kayak and you just carried yours a quarter mile and tossed it up on the second deck like it was nothing!' She hounded me for three years. Plus there were a bunch of other people who wanted to build their own kayaks. I rented a building and got myself and ten builders together to build ten skin-on-frame kayaks.

I didn't know what I was doing. This was the second kayak I had built. But I knew more than anybody else. Basically I was one page ahead of them.

By now I've built a dozen, and probably helped with 200. There's always some retired woodworker who practically spits out a kayak, but there's almost always somebody else who's never built anything before. I get a lot of satisfaction showing those people how tools work. They get done and they say, 'This is the first thing I ever built and it's beautiful!' It gives me warm fuzzy feelings to enable people to do that, to continue this tradition, and to let people see they can actually build things.

DeBoer

Golden's Kayaks of Greenland. I read that cover to cover. You know it's not just about the kayaks. There's all this other stuff in the book as well. Here's what a harpoon looks like. Here are paddles. So first thing, I decided, I've got to make a paddle. Then I had to make an Aleutian paddle too.

What appealed to you about making these things?

Well, the first Greenland paddle I made didn't function at all. It didn't look good. It was too fat. But I thought, I can make one that's a little bit better. I started looking at all of them that are in the books. I was also looking at the Cunningham book, the Robert Morris book (Building Skin on Frame Boats). Of course they had all the plans for the kayaks. So I thought, I want to build a kayak too.

Was there anybody else around who was doing this?

My friend Dave Hamilton was an influence. He was building a skin-on-frame Greenland boat. So now I had someone I could talk to. How to put the skin on, how to stretch it. You need to talk to someone who has done it. This was maybe 2006, 2007. There wasn't a lot of material out there yet. There were those books for building the kayaks. But all the minutiae was not out there.

Let's face it. Most of America does not want to do this. Why do you think you do?

I like building stuff, getting my hands in there. How else are you going to learn?

But why is that attractive to you?

I think it's DNA stuff. My dad sailed all the time. He grew up and sailed in Holland. He had cows on the other side of the lake. So he'd have to sail over there and milk them. But you're on canals that are two feet wider than the barges. You'd look and think, how in the hell are you going to make it through there with those massive sails? He had to figure things out.

Then he came here and bought the resort in

northern Minnesota. He'd show people how to sail. He died at 65, so I got the boat and I used it at our resort. Now I'm in the water all the time. Boats, boats, boats. So of course I thought, okay, let's build a kayak.

Once you're in those kayaks, after a couple years you start thinking, 'Well, why were they in the boat?' To go out and hunt so they could eat. The harpoon. That's why the boat is here.

In Golden's book he shows that 1840-something harpoon. He has it all all diagrammed out. How many centimeters long, what the head looks like, the toggles, the tightening line, the pin, the end knob. So I made my own.

I started telling people about all this, and showing them my harpoon. And they'd say, 'Oh, really?' I got into more of the minutiae. The screen up on the bow of the kayak that you hide behind. The white anoraks that make you less visible.

But what's the appeal? Obviously you're never going to kill seals.

I found a lot of people wanted to know this stuff that they didn't know they didn't know. So now you're sitting in a kayak, you've got the line tray up front, and it's not attached too well, because as the line's coming out you don't want it to get caught. You want it to rip off of there and not tip you over. You've got the avataq behind you, that inflated seal skin. People's eyes get bigger and bigger as they think about it. They're wondering, how could I do anything with all that junk on the front of the boat?

What's the payoff?

For me, education of other people. I started doing harpoon-building classes. We've had four classes and maybe 30 some harpoons out there. The first time there were a couple people. Now we have eight people in a class. We have competitions like they have in Greenland. Other people see it and think they should have their own harpoon. I'm filling a niche that wasn't there. The people who compete are learning new skills. They're controlling the kayak, allowing for the wind, figuring out the right speed.

Do you find the economic aspects — the money saving because you're making your own stuff — is part of the appeal?

I just want make it myself. I look at it and think, 'Yeah I can do that.' •

Safety First!

Rescues with a skin-on-frame kayak

Qajaq USA president Helen Wilkson wrote this piece for Sea Kayaker magazine in April, 2013. For anyone paddling a skin-on-frame kayak, the information is as relevant now as it was then. Photos by Bryant Burkhardt.

Performing a rescue in any type of kayak can be challenging, and a skin-on-frame kayak can present additional complications. These kayaks consist of a series of wooden ribs that make up the frame and a nylon or canvas skin that wraps around the frame. Skin-on-frame kayaks do not have bulkheads and, as is the case with many Greenland kayaks, can be very low volume.

Most modern sea kayaks have bulkheads that create enclosed pockets of air to provide flotation in the event of a flooded cockpit. The bulkhead behind the cockpit also serves as a wall to make it easy to pour water out of the kayak during assisted rescues.

Skin-on-frame kayaks lack bulkheads, so in the event of a wet exit, the kayak floods from the bow to the stern. It is for this reason that standard rescues, such as the T-Rescue, cannot be performed. Special techniques are needed to empty the kayak and flotation needs to be added to compensate for the lack of bulkheads. Without flotation, the kayak will sink when you put your weight on it.

A challenge that can arise is that manufactured float

Paddle Float Self Rescue

1. Remain in contact with the kayak by keeping a leg in the cockpit. Place a paddle float on each end of the paddle and inflate.
2. Hold the paddle behind the cockpit and perpendicular to the kayak as you slither on to the back deck.
3. Inch forward on your belly. Pump as needed.
4. Sit up and move the paddle behind you.
5. Hold the paddle on each side as you inch your way into the kayak. Pump as needed.

bags are often the wrong size or shape for homemade skin-on-frame kayaks. Although manufactured float bags, or even paddle floats, can be used, they certainly aren't ideal.

If you use float bags, make sure that they are pushed deep into the frame of the kayak before inflating. The inflation tubes can be run under the ribs to keep them out of the way and to hold the bags in place. In warm weather, the bags will expand, so it is best to release some air when not in use. Before launching, inflate the bags so that they are tight in the bow and stern. If inflated properly, they will grip to the ribs and seal securely between the hull and deck.

Another option is to pack pool noodles into the bow and stern of the kayak. If shaped and packed tightly enough, the pool noodles will stay in place and provide adequate flotation to keep the kayak afloat.

Here we will look at both assisted and unassisted skin-on-frame rescues, when they work and when they don't.

Self-rescues

There are a couple of options for self-rescues in a skin-on-frame kayak. The first is a paddle-float reentry and the second is a reenter and roll. Although these self-rescues are similar to how they are performed in a kayak with bulkheads, there are some differences.

After capsizing and exiting the kayak, prepare for a paddle-float reentry by keeping the kayak upside down to prevent additional water from flooding into the cockpit. It is important to remain in contact with the kayak, and a good way to do so is to leave a leg hooked in the cockpit while you float on your back. Place a paddle float on one end of the paddle and inflate it tight enough to stay in place. Then place a second paddle float on the other end of the paddle and inflate that as well. (Self-rescues in skin-on-frame kayaks are easier with two paddle floats because entering a low-volume kayak with a small cockpit requires more balance than with the longer cockpits typically found in manufactured kayaks. The person entering will need to inch into the kayak from a sitting position on the back deck with both legs straight and entering at the same time.) Place the paddle perpendicular to the kayak behind the cockpit coaming. Kick your legs and slither belly-down onto the back deck. Keep the paddle in place and inch forward until you are directly behind your paddle. Sit up, keeping one leg in the water on each side of the kayak for stability, and move the paddle so that it is behind you. Grip it on both sides so that your hands are placed slightly wider than the back deck. Using the stability provided by the paddle floats, work your way into the kayak by placing your feet in the cockpit and scooting forward until you can drop into the seat.

Once in the kayak, put the paddle close to your waist and lean slightly forward to hold it in place. This will give you support while you pump the water out of the kayak. In rough water, or with a very low-volume kayak, you may need to seal the spray skirt first to prevent water from splashing into the cockpit. Lean on the paddle while you get the skirt secured on the aft end of the coaming. To finish getting the skirt on, keep leaning forward or rest your arms on the paddle. To pump, you can peel back a side of the spray skirt or slip the pump down the spray skirt's body tube.

When the kayak is clear of water and your spray skirt is secured, carefully deflate the paddle floats and put them away, or attach them to a deck line and put them away once stable.

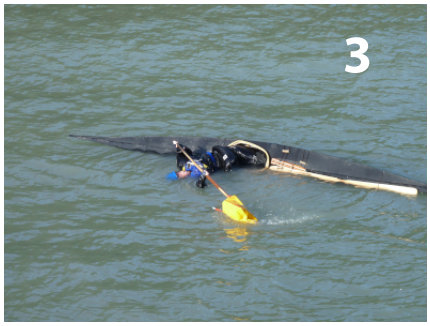
SAFETY FIRST!

A second option for a self-rescue is a reenter and roll with or without a paddle float. After capsizing, keep the kayak upside down with one leg hooked in the cockpit to prevent it from drifting away. If using a paddle float, float on your back, inflate it and put it on one end of the paddle. Hold the paddle parallel to the side of the kayak with the paddle float bow-side. Grab the cockpit coaming on both sides with the paddle trapped under your arm. Inch your way into the upside down kayak as much as you can while your face is on the surface. The kayak may float on its side while you are doing this; however, the more upside down it remains, the less water will enter.

Once you have gone as far as possible with your face on the surface, take a deep breath and commit, pulling your lower body into the kayak until you are in an upside down seated position. Hold the paddle with your palms facing up, parallel to the side of the kayak. Sweep the paddle out to the side in a wide arc, applying upward pressure to the recovery side knee. Keep your head floppy with your chin in the air and slide onto the back deck. Once stable, sit upright, place the paddle in front of your waist and perpendicular to the kayak. Lean forward to hold the paddle in place with your waist and lean very slightly toward the paddle float for additional stability. The paddle float provides a stable outrigger while you pump the water out of the kayak as long as you keep your weight on the paddle. If water is splashing into the kayak, seal the spray skirt first and peel back a corner to pump, or pump down the spray skirt's body tube.

Once the kayak is empty, put the paddle float inside or under a deck line, and seal the spray skirt.

Assisted rescue
When performing an assisted



Reenter and Roll

1. Place float on one end of the paddle. Remain in contact with the kayak.
2. Enter the kayak with paddle under your arm and paddle float bow-side.
3. Roll up.
4. Make sure kayak is stable before sitting up.
5. Pump water out of the kayak.

rescue in a skin-on-frame kayak, both the rescuer and the person in the water (the rescuee) play an active and important role. To begin, the rescuer moves the kayaks so that they are parallel to one another. Meanwhile, the rescuee carefully moves to the open side of the rescuer's kayak, making sure to keep contact with one of the kayaks and their paddle the entire time.

The rescuer places the rescuee's kayak on its side with the cockpit facing toward them and begins to pour the water out. As the kayak becomes lighter, the rescuer hooks their arm into the cockpit and begins a slow curl. This can be a slow process, and the rescuee leans over the rescuer's kayak to assist in keeping the unoccupied kayak level to prevent water from flowing into the bow or stern. Once the kayak is relatively empty, the rescuee moves to the front of the rescuer's kayak. A stable position for the rescuee is to float on their back with their legs and arms wrapped around the bow of the rescuer's kayak. While in this position, the rescuer moves the empty kayak across their cockpit so that the kayaks are in an X configuration, as in the venerable T-X rescue. The kayak is turned upside down and rocked back and forth to remove any excess water.

Once empty, the rescuer turns the kayak the right way up, keeping the kayaks in the X position and places the rescuee's cockpit slightly forward of their own cockpit. The kayaks are very stable in this position, as the empty kayak acts as a huge outrigger. Instead of sliding the emptied kayak back in the water, as is done in the T-X rescue, the kayak remains on the rescuer's deck. The rescuee climbs the bow of the rescuer's kayak. It is most stable to do this with one leg on each side of the kayak

Assisted Rescue: **1**. Rescuer adjusts kayaks parallel to one another and "curls" the water out. Rescuee helps to keep the kayak level. **2**. Rescuer puts kayaks in an X formation. Rescuee holds on to the bow of the rescuer's kayak. **3**. Rescuer inches forward on the rescuer's bow. **4**. Rescuer stabilizes the rescuee's kayak. Rescuee gets in. **5**. Rescuer continues to stabilize the kayak while the rescuee seals in. **6**. Rescuer pushes rescuee into the water, bow first. Rescuee is ready to paddle or brace.

with the legs in the water. The rescuee slithers forward on their stomach until they are close to the empty cockpit and able to sit up on the rescuer's foredeck. The rescuer takes the rescuee's paddle, allowing the rescuee more dexterity to move their feet behind them and to get on their knees on the rescuer's front deck and then onto the back deck of their kayak. They can then enter the kayak, seal in and take back their paddle before the rescuer gently pushes the rescuee bow-first into the water.

A word of caution

After taking pictures for this article of both assisted and unassisted rescues in flat water, we decided to perform the same rescues in more dynamic conditions. According to the National Oceanic and Atmospheric Administration (NOAA), wind that day in Trinidad, California, was predicted at 10 knots, with wind waves of four to six feet and a west swell of four feet at six seconds. We paddled to the back of Trinidad Head to a popular play spot called "Smack Wall." This spot is known for its blowhole and reflected waves, and we hoped that these waves would create some chop for the rescues.

Michael Morris and I, with Bryant Burkhardt taking pictures, performed an assisted rescue and were happy to discover that it worked, and worked well. We both agreed that the same rescue could successfully be performed in much larger conditions, since we faced no immediate challenges. What we discovered later, though, was that the antler deck fittings attached to the deck lines on the front of Michael's kayak had put three one- to two-inch rips in the bottom of my kayak as it was dragged across his deck.

Not knowing about the rips in the kayak, I attempted a self-rescue in the same dynamic conditions and it soon became apparent that I was not going to be able to get the water out of the kayak. The cockpit had gone underwater, so no amount of pumping would help because if I pulled back the edge of my spray skirt a bit to put a pump in, water would pour in around the pump. The kayak had fully inflated airbags in both the bow and stern, so it wasn't going to sink, although I would not be able to empty it alone. I wet exited so that we could empty the kayak and Michael came in for an assisted rescue. Bryant noticed the holes in the bottom of the kayak when Michael pulled it across his deck. We performed an assisted rescue to get me back aboard, knowing that the holes in the hull would soon swamp my kayak again. It only took seconds before it was once again barely afloat.

The beach was a mile away, and we tossed around ideas about how to handle the situation. Michael could raft up with me and Bryant could tow both of us to the harbor. Once there, Michael could possibly patch the holes with duct tape. Instead I opted to paddle the swamped kayak to shore. During the one-mile paddle I had to throw in several strong braces, and if I slowed down the kayak would lose stability and fall over. Considering the circumstances, travel speed for that mile was surprisingly quick. At one point I tried holding on to the back of Michael's kayak for a contact tow, but keeping the bow of the flooded kayak lined up with the bow of his kayak required core strength that I didn't have, so I opted to just keep paddling. We made it to shore safely and decided to head out the following day with a different skin-on-frame kayak to try the self-rescues again.

The next day had little to no wind, the swell had increased to 10 to 12 feet at 11 seconds and the wind waves had diminished to less than a foot. We went to the same place, "Smack Wall,"

and I capsized and prepared to get myself back in the kayak. As I climbed onto the back deck using the same method that had worked well in flat water, I watched as the waves filled the cockpit and it gradually sank under the surface. I realized that, once again, I would not be able to empty it myself.

I also attempted a reenter and roll with a paddle float and was successful, but the same problem presented itself; the cockpit was flooded and had submerged below the surface. Michael and I performed an assisted rescue, being careful not to scrape the bottom of my kayak on his deck fittings.
For me, the sinking kayak was a scary realization. In conditions where waves are entering the cockpit, I am not able to remove the water from the kayak to perform a full self-rescue. The good news, though, is that with adequate flotation provided by airbags, a skin-on-frame kayak can be paddled fully flooded but with severe limitations.

The lesson, I think, is that it is important to remember that things can go wrong in any type of kayak and with any type of gear. It is important to practice rescues in all types of kayaks to see what works and what doesn't and to have a dependable roll. Airbags in a skin-on-frame are very important, because even though my kayak flooded, I was still able to paddle it. Without the airbags, the kayak would have been lost. Airbags should be checked before every paddle to make sure that they have sufficient air.

It is safer to paddle with others. Without a strong roll and bracing skills, it is probably best to not take a skin-on-frame out alone.

With holes torn in the hull, Helen's kayak was flooded. Float bags kept her kayak at the surface as she paddled ashore.

Top Hits of Greenlandic Music

Dubside's Curated List of Artists to Know and Support

Photos and text by Dubside, except for CD covers

Some years ago a few QajaqUSA members, in brainstorming ways to support Inuit culture, commissioned Maligiaq in Greenland to custom build a couple of qajaqs, which he did and subsequently shipped to the U.S. They were first-rate skin-on-frames unmistakably bearing Maligiaq's authentic craftsmanship, yet the endeavor did not lead to any immediate requests for additional orders. Another idea at the time was for one of the Greenland qajaq clubs to make paddles for the U.S. market in expectation of capitalizing on the special appeal of items actually "made in Greenland."

Maligiaq finishing a kayak.

Taking either of these concepts to anything beyond the one-off stage ran into practical limitations. The raw material had to be imported, as Greenland has no native lumber, nor any sawmills to process the limited driftwood to be found. By the time wood is imported, turned into product, and exported, the cost becomes prohibitive. On a conclusive coda to the paddle-making idea, the instinctively resourceful Greenlanders who came to U.S. kayak events were far more interested in acquiring and taking home some of the nicer paddles they found here.

If not paddles or qajaqs, perhaps something made of a material other than wood could fit the bill. Greenland does have an ample supply of sealskin and a tannery to process it into clothing and accessories, which they already do on a large scale. Yet none of it ever gets to the U.S. market due to the legal restrictions of the Marine Mammal Protection Act that went into effect in the early 1970's. Strike two.

But there is a workable solution here, one unrestricted by prohibitive legislation, and unhampered by limits on raw materials. The musical output of Greenland is indeed a product that is made in Greenland by Greenlanders, can be economically exported, and helps keep alive the culture that gave us the kayak. Embracing Greenlandic music is an enjoyable way to support the language, the culture, and the heritage of the traditional qajaq.

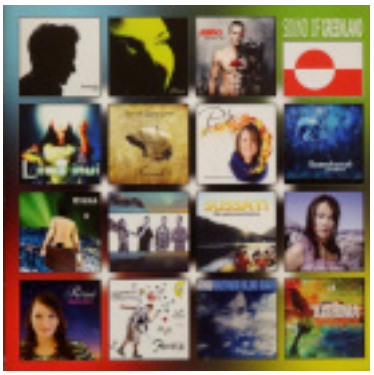
Ungaaq Tobiassen of Qajaq Nuuk

For a country with a population of less than a small American city Greenland generates a surprising quantity of music. From as far back as the 1970's Greenlandic musicians made use of

GREENLAND HIT PARADE

modern recording technology to produce vinyl records followed by cassette tapes and compact discs, releasing an extensive catalog encompassing multiple genres. I've been avidly collecting from this output for over fifteen years and it has enriched my understanding of and appreciation for the culture that spawned the qajaq.

I invite you to embark on your own exploration of this treasure trove. The examples cited here are meant as a starting point. Bear in mind however that these suggestions do not cover the full range of music found in Greenland. Dig deeper and you'll find traditional drumming, Greenlandic polka, a cappella chorale singing, children's songs, Greenlandic rap, reggae, heavy metal, and more.



1. Sound of Greenland, by various artists
If you are completely unfamiliar with Greenlandic music the fifteen artists on this compilation CD make a fine place to start. Rather than try to describe in words what every track sounds like suffice it to say that there's a broad range of popular music styles one or more of which are bound to be of interest. Some notes regarding each artist:

Kimmernaq is a female vocalist whose debut album entitled Tunissat from the early 2000's was a big hit, featuring accessible pop songs done for mass appeal to Greenlanders. The song on Sound of Greenland, Uummat uumasuutigaa (Its vibrant heart) is from her 2013 CD Uani. Both Kimmernaq albums are available on itunes.

Sussat! does light-hearted sing-along type of material. Sila Qaamareerpoq, the song used here, is the title track from their first release and became their trademark hit. I can't say that I'm all that fond of leader John Sandgreen's inclination to use pitch quantizing vocal effects all the way through every song but I suppose it matches the party atmosphere he's aiming for.

Nanook If I were to add a seventh CD to the six recommended here it would have to be Nanook's first release Seqinitta Qinngorpaatit (Our Sun Is Shining On You) from 2009, which has been such a runaway and enduring success I think it may have outsold everything else in the Greenlandic catalog. Sound of Greenland contains the title track, which is only a tantalizingly small taste of what Nanook is capable of. These guys really rock. They also are keenly tuned in to the social pulse of things so that like all great artists, they speak both to and for the masses, expressing through their art the feelings of Greenlanders as a whole. The guitar-playing frontmen, two brothers named Frederick and Christian Elsner are the driving force of the band. They are also involved one way or another in many of the musical projects done in Greenland. In fact it was Frederick who wrote all the songs on Kimmernaq's Uani album.

Nanook has by now put out several albums and Frederick is so prolific he's recently completed his second solo project. Besides making compelling music, I particularly admire their integrity. I have talked to both of the Elsner brothers on several

GREENLAND HIT PARADE

occasions and they can speak perfect English, yet every word they sing on record is in their native tongue. And they have something to say too, exploring themes of climate change, Inuit identity, and self-determination. All their lyrics are printed in their CDs both in Greenlandic and English. Nanook can also be found on itunes.

Jenseeraq is a guy who was a key member of a popular group called Uummat who hailed from the town of Aasiaat in the Disco Bay region. The song here is from his 2013 solo album Qaammatip Tungaanut. He not only wrote all the songs, he also plays just about all the instruments. His production and arrangement sensibilities are impressively sophisticated without taking away from the catchy tunes he composes.

Rikka plays acoustic guitar and writes his own material but makes use of the full band production for recording. The song here, Takkukkuit (When we are together once again) comes from his 2011 CD, Unnap Nipaannerata. To my ears he has some even better stuff on his 2014 Rikka 25 CD.

Rina, a talented female vocalist, is maybe a generation younger than some of the other people described here. She's a protégé of Sussat!'s John Sandgreen so the arrangements are upbeat and straightforward. I imagine the song subjects are likewise but I can't really tell because there are no translations given.

Nina is without question one of the best female vocalists Greenland has. She's had a long career singing in various groups and contexts before making her solo album Eqqissineq (Peace) from which the song here Qimmagit (Be happy) comes.

Although that album was recorded twenty-some years ago it remains a classic, particularly the song Silarsuaq Takuiuuk (Have You Seen The World?), a number that could be considered the unofficial Greenland national anthem.

Tupaarnaq is another top singer of the same generation as Nina and Kimmernaq. Her best work is on the CD Illit (You), which can be obtained on itunes. The song here, Arsarnerit (Northern Lights) comes from a compilation entitled Arctic Horizons Killingusaaq and reveals her command of dynamic range.

Liima Inui entered the scene about 2007 as a politically conscious band featuring the unique abilities of lead vocalist Randi Broberg. After a few more releases she went into politics and the group stopped making further records. The Greenlandic lyrics on their albums include English translations.

GREENLAND HIT PARADE

The band known as **Kishima** is the brainchild of Henrik Høyer Jensen, who has made three full-length CDs so far. You could say his music is guitar based, both acoustic and electric, but his range of textures and command of keyboard and drum instrumentation creates a broad range of moods. The song here Alutorna' Haar' comes from his second CD Timmiaaqqatut, which can be found on itunes.

Angu is one of the two artists on Sound of Greenland who sings everything in English. It's been many years since he made any new recordings, yet his music still holds up over time. The production is a fairly straightforward commercial sound, yet there's an appealingly cool quality about his voice and persona. The song subjects may appear to be simple love songs but Angu views the world from an artist's unique perspective. The song here Ghosts and Drag Queens comes from his album Burning Blue Skies although I would have selected the song Yesterday's Today instead. I'm reluctant to confine Angu to a narrow description but I would say there's perhaps some R.E.M. influence in his sound.

Juno clearly has talent. He does the type of crooning heard on top-40 R&B ballads and he uses musical arrangements to match. He can sing, he's got decent songs, and in concert he commands a crowd quite well. He's even got a guest rapper and dancing girls in his stage show. And on Perfect 10, the album the song Back Home is taken from, he sings everything in English. Which is fine in itself but that doesn't leave much to distinguish his act from dozens of other people in the U.S. or anywhere else who are doing the same thing.

The remaining three artists included on Sound of Greenland, the bands **Tullerit** and **Qaammataasat** and another female vocalist **Pilu** are in the same vein as several of the acts previously described. Their distinguishing features become apparent after listening to the whole collection a few times.

2. Naasumik Paju by Juaaka

Juaaka Lyberth turns 70 this year. He has been a journalist, a politician, and a touring performer at various points in his life. He released several albums back in the days of vinyl records. Naasumik Paju (A Flower For You) was recorded in 2011 as something of a retrospective. Notable tracks include Lis Marie, a well-known Greenlandic love song, which appears here in both Juaaka's original 1974 recording, and a modern version. Also Nuilersup qilaap seqinersuata (The Sky of the Dawning Sun) a storied poem he didn't write himself but set to music. Joining Juaaka on several tracks of this CD singing backup vocals is Pavia Lumholt, a name that may be familiar to some longtime attendees of both Delmarva and SSTIKS. Pavia was very active in traditional kayaking during the early 2000's.

3. Zedna, by various artists

GREENLAND HIT PARADE

A guy had a bunch of songs he had written. He and an arranger/producer friend got the idea to have the top female vocalists in Greenland sing them. That might not be exactly how this project came about, but it's probably a good guess, and more importantly, they pulled it off with stunning success. Released more than fifteen years ago the CD remains a testament to the depth of Greenlandic talent and the triumphant realization of the original concept. The aforementioned guy-with-songs did indeed get six of Greenland's finest vocalists to perform his material including **Nina** and **Tupaarnaq**, who also appear on the Sound of Greenland compilation, plus **Katsi Kleist, Stinne Jakobsen** and **Julie Berthelsen**, who have all done solo albums too.

This is quality music assembled as meticulously as the tracks on a Steely Dan record. The arrangements are lush, painstakingly produced backdrops that set off the high caliber vocal skills of the singers. The Greenlandic lyrics for each song are included in the CD notes, but there are no English translations. My favorite tracks are Ullaaralaaq sung by **Stinne Jakobsen** and Aputit Nakkakaasut by **Katsi Kleist**. Incidentally, these two women both competed at the Greenland National Qajaq Championships. As a teenager in 1997 Katsi Kleist earned gold medals in ropes (with a 95 point score), rolling (47 points), and team rolling. Stinne Jakobsen, also in her teens competed in 1996 and in 1997 winning several gold medals in the racing and harpoon events.

4. Hey Hey, Rasmus Lyberth Band

Rasmus Lyberth has had a long and distinguished career as a musician, something few Greenlandic artists can do viably as a full-time occupation. The shining highlight in his music is his tremendous opera-quality voice. If you have ever done morning yoga with me at a QajaqUSA event, I often put on in the background a selection of Rasmus Lyberth's music due to its calming, uplifting quality. One doesn't even need to see the translated lyrics to sense the positive spiritual energy. Rasmus (the Greenlandic pronunciation of his name uses a soft 'r' so it sounds like "Haas-myewss") has had the distinction of performing at London's Royal Albert Hall. He has also played the starring role in a feature-length movie, Heart of Light (Qaamangup uummataa) from 1998, in Greenlandic with English subtitles (wholeheartedly recommended). I had an opportunity to see him in Washington D.C. in 2013.

He is not fluent in English and he knew the crowd wouldn't understand his Greenlandic lyrics but he told us, "Just close your eyes and we go to the stars." And we did, particularly when he sang what I consider to be the masterpiece song on Hey Hey, Akunneq ataaseq naammanngilaq (Girl of My Dreams).

Several other Rasmus Lyberth CDs are on itunes, including Asanaqigavit, also a fine collection. The Hey Hey CD contains lyric translations both in English and Danish.

5. The Map of Your Life, by Simon Lynge

Not every Greenlandic artist sings in Greenlandic. As an acoustic guitar-wielding singer/songwriter Simon Lynge does just about all his material in English. He was born in Greenland but did not grow up speaking Greenlandic. He is nevertheless a superb musician quite dedicated to his craft. Like a young version of Rasmus Lyberth, his lyrical motifs

are infused with an uplifting, positive attitude. The Map of Your Life is his third CD. I'd seen him perform on a big stage after his first album, but a few years later I saw him again at a small club in Denmark where he blew me away with the song Hallelujah before I'd even heard the recorded version on The Map of Your Life:

"Picture myself in a room in a house on a hill.
My heart is wide open the tears are just flowing at will.
Hallelujah, I'm a poet in love with a dream.
Hallelujah, I'm a boy throwing stones in a stream…"

Simon Lynge is probably a lot easier to see perform live because he's been based in the Washington/ Oregon area of the U.S. and he tours quite often. For that matter I wonder if there is a possible alignment of schedules and budgets that would allow him to be the featured guest at a QajaqUSA event. Or maybe that's an overly ambitious wish on my part. It would certainly chart new territory in the wake of the Palo's Wedding race, the 2-hour kayak build, the one-dollar B-word fine, and other trends that seem to have run their course. Go to simonlyngemusic.com. Also available on itunes.

6. Nive Nielsen, Nive Sings

The cover artwork of Nive Nielsen's debut CD hints at what's inside. Whereas other Greenlandic artists often go for a slick, commercial orientation (see Juno described earlier), Nive heads in the opposite direction. This is kitschy, offbeat stuff that sounds like it was recorded in a home garage setting. It's got lyrics to match. There are song titles such as Autoharps, Vacuum Cleaner Killer, and My Coffee Boy. It's done well but with no pretensions of Top 40 pop chart success, other than the fact that most of it is in English even though Nive herself speaks fluent Greenlandic. Apparently she has found a sustainable niche because she's done surprisingly well. The most accessible track, to my ear, is Good For You, co-written with Angu.

After this initial offering she expanded her lineup into a group called Nive and the Deer Children in which she surrounded herself and her red ukulele with a seemingly random miscellany of instrumentation such as a harpsichord, musical saw, banjo, trombone, and clarinet. If Tom Waits did children's music it might sound like this – minus the gravelly voice. And just as Waits built a sustainable career by developing a dedicated cult following, Nive seems to be doing the same, and like Mr. Waits she has been able to branch out into acting, appearing in both TV and movie roles. Good for her.

Niva in Copenhagen, 2010

To summarize these six selections, the two compilations, Sound of Greenland and Zedna, are both on-target representations of some of the best that Greenland has to offer and provide an economical way to sample the work of many top artists, especially Nina and Nanook. Then there is Juaaka's Naasumik Paju, which can be thought of as the archetypal Greenlandic offering in terms of the songwriting, arrangement, production, and packaging. Rasmus Lyberth with Hey Hey is to some extent in his own category with a unique sound that his years of refining have polished to an exquisite degree. Simon Lynge is less

representative of Greenlandic music, as almost all his material is in English, but he's an excellent songwriter, which is reason enough to check him out. And finally, Nive Nielsen's Nive Sings! is an example of the off-beat alternatives found in the backwaters of the Greenland music catalog.

At atlanticmusicshop.gl you can order most of the six titles above, and many of the other albums mentioned. Depending on the fluctuation of the Danish Kroner, the cost per CD, with international shipping included, is usually less than $20.
I realize that physical Compact Discs will soon join the realm of cassettes, phonograph records, 8-track tapes, and wax cylinders. But even if wax cylinders were before our time, the majority of sea kayakers are in the age demographic that can remember when CDs first appeared on the marketplace. If hearing mP3 files on your smart phone is the high tech equivalent of using a carbon fiber paddle, then savoring music on a spinning disc played through a pair of speakers with separate tweeters and woofers is like the feel of a fine piece of wood in your hands flexing against the give of the water with every stroke. Happy listening.

Dubside has been regularly attending QajaqUSA events across the country and going to the Greenland National Competition for many years. Stories of his experiences can be heard on his podcast The Dubcast with Dubside, which also has a special focus on the contemporary music of Greenland.

Early Adopter: Bart Hauthaway

Remembering a Skeptic Turned Ardent Greenland-Style Promoter

by Dan Segal

My journey into Greenland kayaking began when Bart Hauthaway, then age 75, told me with evident shame that he had been designing and building kayaks wrong for 30 years. That the Greenlanders were the true experts. That they were the professionals who had adapted and developed kayaks for centuries. That they lived or died by kayaks. That they obviously had forgotten more than we – amateurs, and new to the game – would ever know. That he had been a fool, too blinded by his own self regard to pay attention enough to understand. A thing that that he regretted. And that if I really wanted to learn kayaking, I should learn what the Greenlanders could teach me; learn what technique I could; try to find traditional kayaks to use. And then come back and show him.

This was a complete reversal. And a surprise that, in retrospect, wasn't a surprise. Bart was a complicated man who was quite sure of his opinions. He was sure that he knew Greenland kayaking, and he was sure it was outmoded and somewhat ridiculous. Then, somewhat against his will, and somewhat out of curiosity, he built a Greenland kayak. (Well, his version of one.) We all get into our grooves and are blinded by being very sure that we know what we know. And then, well…. But let me give you some context.

Bart Hauthaway was a legend in the kayak world. Quite literally: he was named one by the ACA in 2002, the year of his death, and inducted into the Paddlesports Hall of Fame. He was a fierce downriver and slalom competitor, often beating people 20 years his junior. And a renowned coach who both introduced newbies into the wonders of the double paddle and served as head coach to the US Whitewater team through the 1960s and into the first Olympic slalom in the 1972 Games. He was also one of the premier kayak and canoe builders in the United States. He helped introduce the U.S. to fiberglass boats through a major manufacturer, and went on to build over 1,000 of them himself. But you should also know that he was also a very good friend, a weekly dinner companion, and close enough to family that he spent Thanksgivings at our house.

And he was an opinionated, outspoken, oftentimes offensive and biased New England Yankee. He had surprising blind spots. For instance, we unknowingly introduced him to Chinese food. He was in his 60's. I won't share what he called it, despite how much he enjoyed it. It was embarrassing. He knew that. His brusque, direct, last-generation style could be quite charming. But you had to overlook -- maybe have some sympathy? – for his lifelong predispositions. You wanted to. And I'm sure he

was embarrassed by them. But habits die hard.

Bart had significant exposure to Greenland kayaking, both the equipment, and the technique. He read deeply. He corresponded with John Heath. He attended and photographed a demonstration of Greenland technique at Fort Devens, in Massachusetts, that featured the current Greenland National Champion Ove Hansen.

He both marveled at it and ridiculed it. It took the paddlers forever to get into their kayaks. Then they had to lash down their jackets, tie off their hoods and sleeves. The kayaks were crude, and crudely built, and reminded him of the Folbots and Kleppers used for whitewater before he had brought the world forward into the fiberglass era. The Greenland boats had chines! Bart knew that water "didn't like to go around corners." (All of Barts boats were round bottomed, as they should be.) The paddles were long and strange. The paddlers talked about "slippage" of the paddles in the water (canted strokes for added power.) The last thing you'd want is a paddle that slipped! Then, once in the pool, the paddlers demonstrated all these trick rolls. He dismissed them as "party tricks." It was all impressive in its way, but, like Chinese food, it wasn't something for every day.

Yet, I wonder that Bart was not more in tune with Greenland seal hunters. He was a devoted hunter and fisherman and chose that as a way of life. He enjoyed being on his own, out of doors. He skipped his college graduation in favor of a tuna fishing tournament. He always seemed a little uncomfortable with people, especially in numbers. He used his out-sized personality as a buffer to interact, but at a distance. After he got back from WWII and finished Harvard (His war consisted of being dropped onto Japanese-occupied islands in an advanced guard, then photographing the Allied invasion. He did this eight times. He never talked about his duties between the drop and the photography.) He settled on a small plot of land across the street from a state forest where he could hunt his own meat – one or two deer each year, plus what turkeys and ducks he could take, all shot with a bow as being more sportsmanlike. He fished from a small canoe, often taking fish that weighed more than the boat itself. He had several shellfish licenses. His holiday cards were usually a photo of him in a canoe holding up huge striper, or with a deer. He built a little Cape-style cottage and planted a garden. He made his living then by writing for outdoor magazines such as Field and Stream and Outdoor Life. His house was filled with mounted trophies, bows, and rifles. It was like a fantasy from Boys' Life magazine's holiday issue.

Hauthaway watching a demo at Walden Pond.

In the 1960s he fell deeply in love with kayaking. Mid-century kayaking was a small club, especially in the U.S. It was a river-oriented sport epitomized by downriver racing and slalom. Most racing was in Europe. The sport was young there, but younger here.

THOSE EARLY ADOPTERS

Bart was in his forties by the time he began competing. People ran slalom in Folbots and Kleppers; bulky, heavy, skin boats with folding plywood frames. Other commercial boats weren't available. But in 1960 Bart saw Barb Wright, then the U.S. Women's champion, paddle a demonstration in a kayak with a fiberglass hull and a canvas deck.

It was a spark that started him building his own kayaks with 'glass hulls and – more difficult – 'glass decks. His were very light and very fast. He'd show up with one, and someone would buy it out from under him. Always experimenting with shape and building technique, soon Bart was the foremost designer and builder of downriver and slalom kayaks this side of the Atlantic. At one point his waiting list for boats ran over a year. He taught Lew Gilman at Old Town Canoe how to build fiberglass canoes and kayaks. Bart built their molds. His boats were pervasive. The first kayak I ever paddled was an Old Town Slalom designed by Bart, though I didn't know that at the time. (I couldn't keep it upright.)

He had also convinced Old Town to build other innovations. One was an adaptation of J. Henry Rushton's Adirondack pack canoes: lightweight little double paddle canoes that are the elegant forerunners of today's rec boats. Another was larger kayaks that could carry camping gear. By 1975, Old Town was building some of the first touring kayaks in the U.S. to Bart's design. He called one the "Greenland kayak." But handsome as it was, with its short, low ends and round bottom, it was Greenland in name only

Bart also built his own boats. By his own estimate, he built over 1,000 boats to order, one-by-one, in his basement. Not all were racing kayaks. Some he custom designed for paddlers with physical disabilities, others were more advanced versions of the Rushton canoes, half decked with foot rests, spray skirts, and even little sailing rigs. Bart was a master craftsman who could almost match Kevlar weight in fiberglass and polyester resin. The Wee Lassie canoe Bart built for my wife weighs 19 pounds. He was proud to use easily-found materials. The looms of his paddles were hardware store closet rods. (Though the blades were elegant, complex fiberglass spoons of Bart's design.) He sewed his spray skirts from store-bought waterproofed nylon. The little sailing rig on my wife's canoe was sewn from a Sears bed sheet, with a dowel for a mast and lath for a sprit.

He was also constantly coaching. Sometimes it was as a joke. Want to get better, he'd tell downriver competitors? "Then just follow me." They'd be shocked when he took off his helmet to reveal his bald head. He ran winter sessions in local swimming pools, and summer sessions every Saturday morning at nearby Walden Pond. He never charged for coaching, saying that it was because he was selfish. "That way if I don't like you, I can tell you to go to hell." But I never saw him send anyone away. (A few were reduced to tears.) He demanded smooth technique. Splashing was both inelegant and wasted energy. People came to him. When you called to ask if you could come to a session, he'd ask if you were any good. But he didn't really care.

Bart was known for his refined paddling style. His passion was a popular flatwater exercise for slalom paddlers from the days when slalom kayaks were 14 feet long. Here in the States, it was called an English gate and consisted of some twenty or so maneuvers done through and around a fixed, hanging, slalom gate, often in a swimming pool: You paddle forward through the gate; turn 180 degrees clockwise; paddle through forward again; turn 180 degrees counter clockwise and paddle through again; paddle

backward to the right of the gate; roll to the right; paddle forward through the gate; paddle backward to the left; roll to the left…. And so it went. A private dance. Bart made it look so easy. His strokes were long, deep and far from his kayak. They didn't look like strokes at all, really. He'd firmly plant his paddle in the water as if he was sliding a sharpened spade into fresh concrete, then lean on it and move the kayak around it, never splashing, sensitive to the water and to the smallest effort: an artist of the water; cellist rather than a violinist; his music deep and slow. Yet he could finish a full English gate set in less than a minute.

I don't know who convinced Bart to build a Greenland kayak. It could be that with advancing age, Bart thought it was time to try a more stable, larger kayak. He told me that people had been pressuring him to build one for years, even offering kayaks as sacrificial male molds. He lent me one of those to play with for a few months. It was a commercial skin-on-frame with a bridge-truss frame based on a Skene drawing (Norman L. Skene. 1923. "Building Plans of Walrus, Esquimo Kayak". The Rudder, June 1923) of a Greenland kayak. Skene widened the kayak in his drawing, thinking that the original kayak was too narrow to be safe. And the builder of the commercial boat modified it still further. This was not something that Bart wanted to perpetuate. Modifications of modifications seem to be a theme of modern kayak building. Wasn't the original Anas Acuta a fiberglass modification of a plywood version of an Illoirsuit kayak? And now it boasts even more modern conveniences: an even larger cockpit, more volume, a skeg. Bart didn't want that. Although he was going to build in fiberglass – it's what he knew – he wanted the hull to be as close to a real kayak as he could. He took measurements off a kayak at the Pilgrim Monument and Provincetown Museum, built a glass hull with slightly rounded chines, and decked it with aircraft Ceconite dacron in the style of 1960's whitewater boats. It weighed about 35 pounds.

Bart called it the best kayak he ever paddled. The best he ever built. And he suspected that it wasn't as good as the original. He tried to make a Greenland paddle. The attempt consisted of fins glued and fiberglassed onto a closet rod. Then he realized that he actually knew nothing about Greenland technique. But based on what the Greenlanders did for a living, and what he had seen at Devens, he was sure that these people understood kayaking in a fundamental way that he had yet to comprehend. He felt too old to learn. This was the last kayak Bart paddled. It was the one he showed up in at Walden Pond every Saturday morning until, with a couple of replaced

The Skene Walrus. Free plans available at PaddlingLight.com. Photo courtesy Bryan Hansel.

THOSE EARLY ADOPTERS

joints and advancing Parkinson's, he didn't.

So he gave me the kayak, told me where I might find a better Greenland paddle, and provided a few leads as to where I might find information on technique. I had a strong feeling from him that if he could, he would, in retrospect, have attempted to build a replica of the kayak he had tried to copy. He felt too ignorant to "improve" on what the "true experts" had evolved. "Show me what you learn." Someone, seeing the kayak on top of my car as I drove from Bart's, followed me home to ask what it was.

This was in fall of 2000. It was a good time to learn. There were videos to help Greenlanders learn technique. John Heath had produced "Rolling with Maligiaq". Greg Stamer, Cindy Cole, and Harvey Golden had gone to Greenland to the Championships and were demoing and teaching. Delmarva had just become a full Greenland event.

I coerced a couple of friends, 40-something soccer players and coaches who were looking for something a little less damaging as an athletic pursuit, on the quest. We analyzed the tapes, and the movements, took what instruction we could find, coached each other. People came to us, too, also fascinated by Greenland technique. We found or made paddles, then kayaks, then replica kayaks. In time, we took Bart out on Walden Pond to show him what we learned. He watched. We'd demonstrate speed strokes, pushing the water against the bottom of the hull. We showed sliding strokes. We paddled upside down. We built the show up to more and more advanced rolls, sculling rolls, hand rolls, rock rolls, elbow rolls.

"That was good," Bart commented. He was pleased. This was almost as good as English gates. But Bart, being Bart, introduced an aspect of Greenland kayaking that we now hear at every QUSA event "Can you do it slower?" he asked. "Can you do it without splashing?"

The 3D Printer Kayak Build

Tradition and Modern High-Tech Share a Moment

by Dave Arruda

At some point early in the pandemic (probably day 2 of lockdown) I took a look at my PRUSA MK3s+ 3D printer that was growing dust on my desk and said to myself, "Yup, I'm going to 3D print a kayak!" That started the adventure that has led me to a 3D printed kayak. It's a version of the Siskiwit Bay SOF. The journey started with a lot of computer aided design (CAD) work (and by a lot, I mean A LOT). I chose to use OnShape, a cloud-based CAD software, as my platform and set to drawing the stations, stems, seat, cockpit rim, and all the various braces and brackets needed to assemble the kayak. Most of the dimensions were taken from Bryan Hansel's original Siskiwit Bay SOF drawings at PaddlingLight.com with some minor tweaking here and there. After what seemed like forever in my office (probably about 2 weeks) I had myself a virtual model of the skin-on-frame kayak that I always wanted and finally had the time to build!

From there it was a matter of setting my good-old PRUSA MK3s+ 3D printer to work to make all of the parts. I chose to use polyethelyene terephthalate-glycol (PET-G) filament for its mechanical properties, UV resistance and general waterproofness. The parts were printed at 20 percent infill in an attempt to save material and weight (more on that later).

The first real problem that I encountered was the fact that the stems and most of the stations were much larger than the build surface of my printer. This required me to go back to the virtual drawing board to section these parts into printable-sized chunks that would later be joined together using some stainless steel hardware.

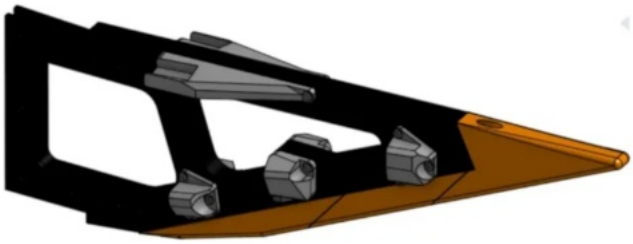
After failing forward for a while I ended up with a box full of all of the parts that I needed to build the frame and a second, much larger box, full of all the mistakes I made along the way. All-in-all I went through about a dozen 1kg spools of filament and a set of bearings for my printer!

After all that I decided to follow a more traditional approach for the rest of the build. The stringers were ripped from a sheet of 1/2" thick Baltic birch plywood down to 1" wide strips. The strips were finished with a black gel stain and then glued and lashed to the 3D-printed stations and stems.

Afloat! Story and photos reprinted with permission from PaddlingLight.com.

THE 3D PRINTER KAYAK

I consulted Corey Freedman over at Spirit Line Kayaks in Anacortes, WA and he sent me an 840 X-Tra Tuff Ballistic Nylon skin and urethane coating kit. The skin went on pretty easy using the welting cord technique. The hardest part was getting the skin to mate with my 3D-printed cockpit rim. I ended up redesigning the rim with a notch around its circumference near the bottom. I glued a piece of nylon rope into the notch and used a hook needle to secure the skin to the rope embedded in the cockpit rim. It took a while but the cockpit came together great!



The finishing really had me hung up for a while. I had put so much time and energy into the project by this point that I really wanted it to finish well. I had envisioned a translucent skin that would allow you to see though to the black frame underneath but I just couldn't seem to get any of my samples to come out the way I had envisioned.

That's when I went crazy and decided to dye the kayak black! When I reached out again to Corey to purchase some acid dye he nearly had a stroke on the phone. "Well, it's your boat you're about to mess up and your a** you'll be sweating off next summer," he said. I was adamant about adding color so Corey reluctantly advised the use of rare earth pigment, which is suspended in the urethane rather than brushed onto the fabric. I decided to take his advice.

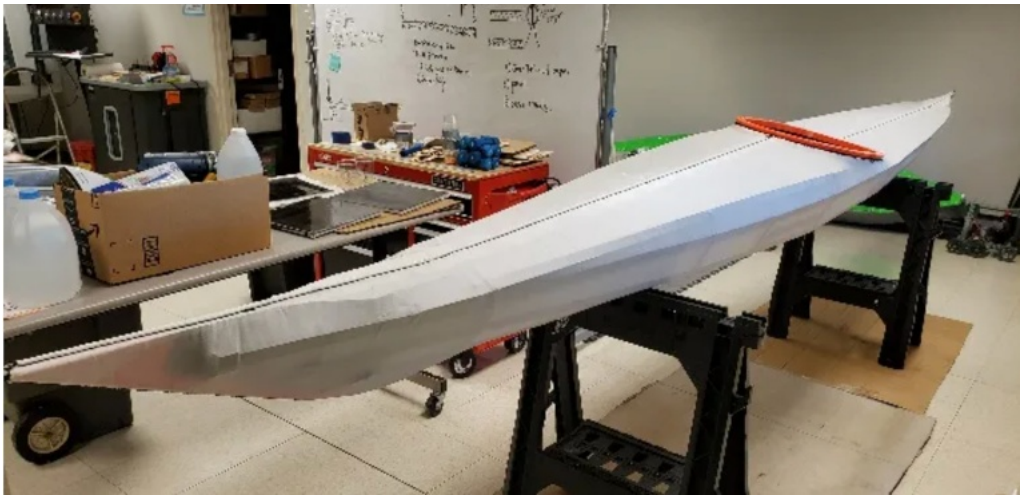
After all that hemming and hawing the finishing really came out great. Up close the kayak has an authentic look. I plan on adding back in some orange highlights on the bow and stern and some orange deck rigging to balance with the cockpit rim as soon as the weather gets better.

We finally took the kayak down to Billington Sea Kayak in Plymouth, MA for its maiden voyage. I couldn't think of a better place to launch from than the kayak shop that started my obsession over 20 years ago. It was cold November afternoon and near sunset when the hull hit the water. "Wow, IT DIDN'T SINK!" was the first piece of good news.

THE 3D PRINTER KAYAK

Overall, the kayak handled well and was fast over the water. However, the center of gravity was a little high, which made the boat a bit unstable for my liking but not any worse than some of the racing kayaks from my past. I'll have to try to drop the seat down about a half inch. That should make a big difference.

Sitting in the cockpit on the water felt amazing, but it was short lived as my daughter Natalie wanted to take a spin. I was over the moon about this because I had forced her into a few kayaks in the past. This time she took it upon herself!

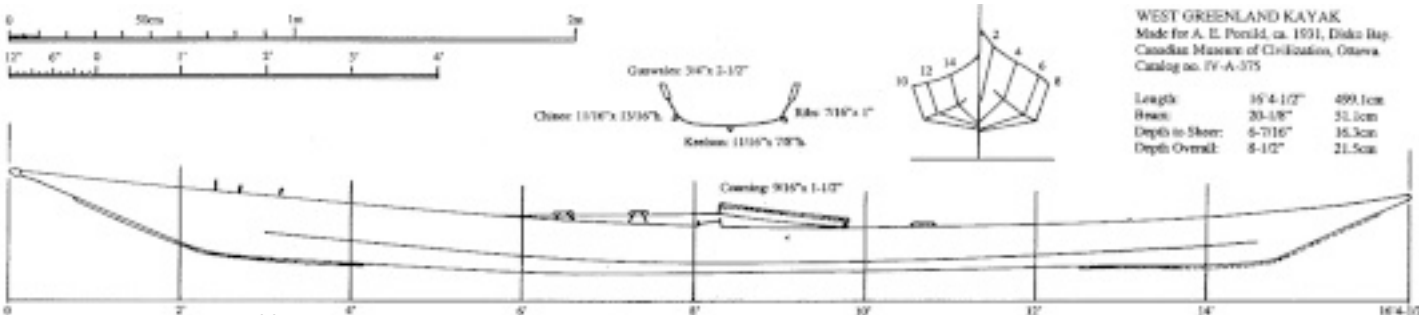


As fun as this project was for me I WOULD NOT recommend building a kayak this way to anyone. For one, the process was hyper-laborious and resource inefficient. Much of that was due to my fail-forward approach and the fact that 3D printing takes FOREVER and requires a complete reset every time you make a mistake in a part. I would probably make a bunch of changes to revision 2.0 if I ever get the hankering to make another one like this. Most notably, I would start by building a custom 3D printer that would allow me to make all of the stations and stems as single parts, thus eliminating most of the hardware and probably shedding a good 8-10lbs off of the kayak. I would also consider removing at least four of the stringers. These changes would get the final weight back down into the low 40 pound range. (It's currently hovering around 52 pounds, which is obviously way too heavy for a SOF kayak). However, producing this craft was an incredible and formative experience for me both as an engineer and a long-time kayaker. It really called on many of my passions and I ended up with a unique kayak that I'm really proud of. I already have plans to build another kayak…just not this way!

This is the time that I should thank a few people that helped me on this journey. First a shout out to Bryan for posting the inspirational Siswikit Bay SOF plans and for making so many other great kayak plans accessible to us all at Paddlinglight.com. Second, a heartfelt thank you to Corey over at Spirit Line Kayaks for all of the great conversations and kayak building advice that he provided, even if I only listened to some of it! Finally to my inner circle: Doug at Billington Sea Kayak for your sage kayaking wisdom, Mom and Dad for helping with the construction, Erin for putting up with all of the late-night cursing and keyboard smashing as I tried to tame the CAD software and whisper the 3D printer into cooperating, and Natalie for melting Dada's heart by being the first person to claim a seat in the cockpit; you'll be an amazing kayaker one day!

Part Four: Replicating A Greenland Qajaq

Fred Randall's expert guide continues with fitting the deck beams and ribs



Survey courtesy Harvey Golden

Seasoned builder Fred Randall's moves on to the next step in his guide to replicating historical kayaks, such as those described in Harvey Golden's book, Kayaks of Greenland. In this issue he offers a thorough description of the tricky business involved in creating mortise and tenon joints.

Previous installments can be found in back issues available on the Qajaq USA website. They include:

1. First steps — letting the original builder speak to you as you examine the kayak survey.

2. Starting the build — putting together a workbench and fabricating stations to create the kayak's form, plus preparing the apummat (gunwales).

3. Locating placement for the ajat (deck beams) and tikpik (ribs). Cutting the rib mortises.

CUTTING TENONS FOR DECK BEAMS

Cutting deck beam tenons is actually very easy. Explaining the process and understanding the explanation can be daunting. If the Kajak (Labrador Inuit spelling of Qajaq) was a box with straight longitudinal sides and vertical sides, the explanation would be much simpler.

A. Cutting Tenons For a Box

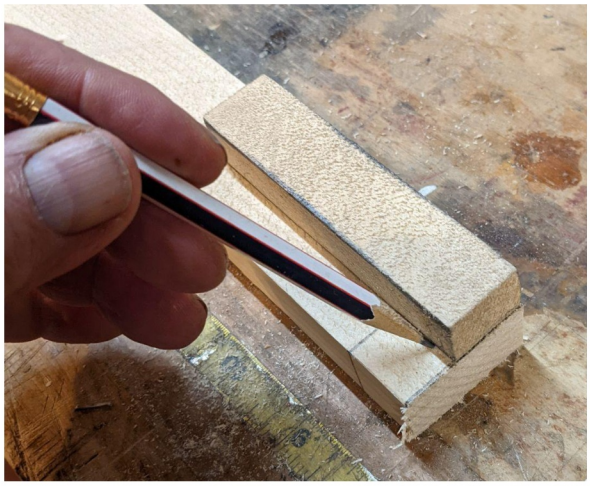
Here we have a box. The mortises are below the deck beam. The length across the sides is the same anywhere along the top of the box and going down from the top, specifically at the mortises. This is because the sides are vertical (no flare) and straight in the fore-aft direction (no curve). So cutting the tenons is a simple process of marking the length of the deck beam at the top of the box and having marking sticks for the tenon. This is described below.

1. **Scribe the underside of the deck beam where it lies on the inside of the apummak (gunwale).**

REPLICATION

2. **Carry that mark around the deck beam with a combination square and repeat for the width of the side/tenon.**

3. **Cut off extra wood from the ends of the deck beam. Mark the tenon width using a simple marking stick having the width of the tenon. "X" marks the wood to be removed.**



4. **Remove wood using a Japanese pull saw.**

5. **Mark the tenon depth using a simple marking stick having the depth of the mortise. "X" marks the wood to be removed.**

REPLICATION

7. Round sides of tenon and work/fit into mortise.

B. Cutting Tenons For a Kajak

a. Preliminaries

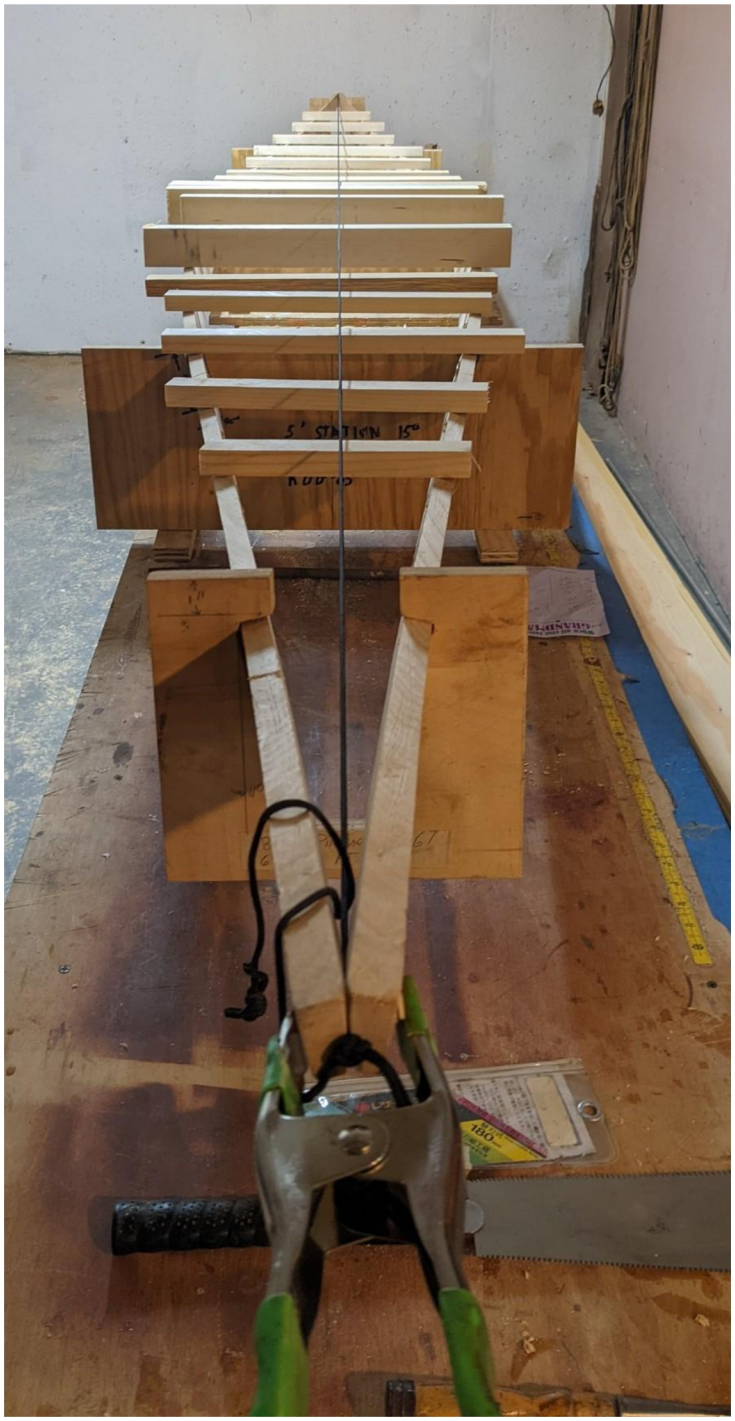
The apummâk (dual of apummak) of a Kajak are neither straight in the fore-aft direction (they are curved) or in the vertical direction (they are flared). So when the ajât (deck beam) is cut it will need to capture the curve and flare of the apummâk. This is no problem as this can be done laying the ajât on top of the apummâk at the location of the mortise. The trick is getting the length of the ajât at the location of the mortises. The length between the mortises is shorter than at the top of the apummak because of the flare. Rather than using a combination square to carry the lines around the deck beam, 2 t-bevels will be needed. One t-bevel with the curve /angle of the apummak, and one t-bevel with the flare of the apummak.

It may be helpful in reading this article to keep in mind that there are only two lines we are working with; the line of the apummak's curve and the line of the apummak's flare. Transferring those lines from where they were captured to the correct location on the deck beams using t-bevels involves a series of steps.

The ajât will be 1-½" wide by ¾" deep. They are made with white wood (mostly spruce). The ittivik (back beam) will be 2" wide and 1" deep, often made with a hard wood for strength. For this Kajak, the ittivik (Labrador Inuit spelling of isserfik) is made with spruce. Since the strength of a beam is proportional to the cube of the thickness, this increase in thickness will more than double the strength of a ¾" deck beam. The tukkigummiak (foot brace) will be made of red oak. It will be 2" wide and ¾" deep.

Before cutting the tenons, the ajât, masik, and seqqortarfik (curved beams) will be laid out at their proper locations and marked with a number (indicating location) and an arrow pointing forward, and the Kajak will be checked and adjusted for symmetry.

REPLICATION



The picture to the side shows the deck beams all in place. A centerline string is run from bow to stern, and is held in place with a knot, as shown. Symmetry is checked using a combination square with the blade against the center line on a station, as shown in the picture below. If there is a gap between the blade and the string, adjustments are made. The adjustment is made by sliding the ends of the apummâk minutely in opposite directions. All 3 stations are checked, and the process repeated. When there is symmetry in the apummâk, the underside of all of the deck beams are scribed where they lie against the inside of the apummak. This is done now before further work upsets the symmetry.

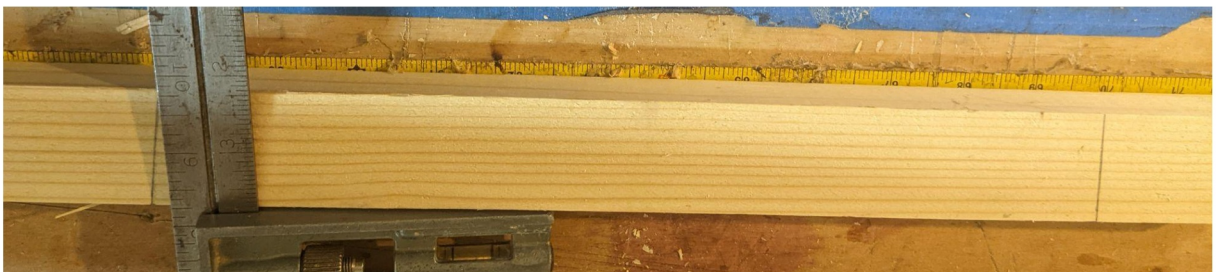
b.Step by step

1.Aligning the ajât with the mortise

The top center of the ajât has been marked with an arrow pointing forward, and numbered. The mark also indicates the top of the ajât. The ajât is aligned directly over the wider end of the apummak (the aft end forward of midspan and the forward end aft of midspan). The reason will be explained later.

2.Marking the apummak curve on the ajât

With the ajât aligned over the apummak, the bottom of the ajât on both the port and starboard side are scribed with a pencil. A tick mark is made. It is just above the pencil seen in the image to the left



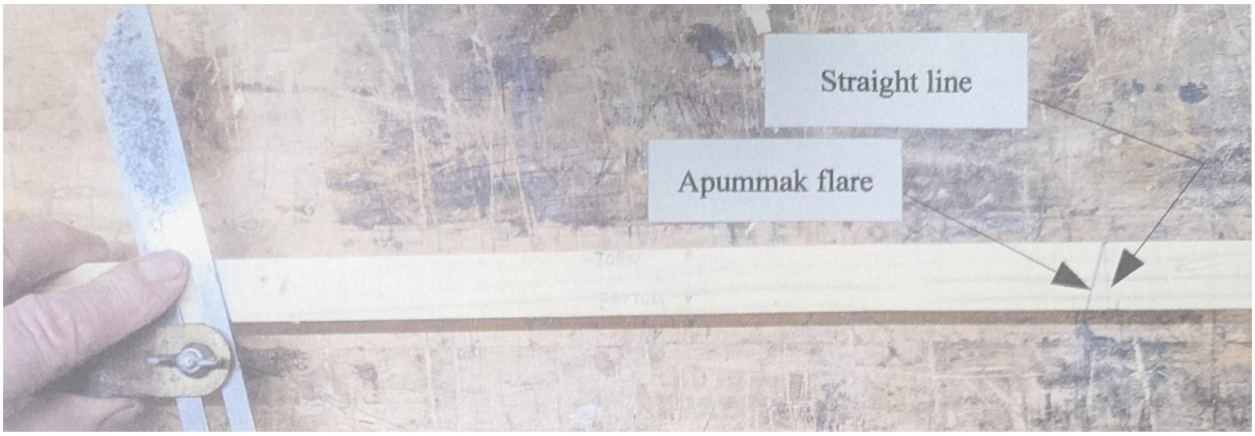
and on the widest side of the apummak. There is another tick mark on the other end .The two tick marks are for repositioning. The scribed lines capture the curve, angle, of the apummâk, as shown in the picture above. The combination square is to demonstrate the amount of curve/angle.

3. Determining the length of the ajât at the mortises and marking that length on the ajât

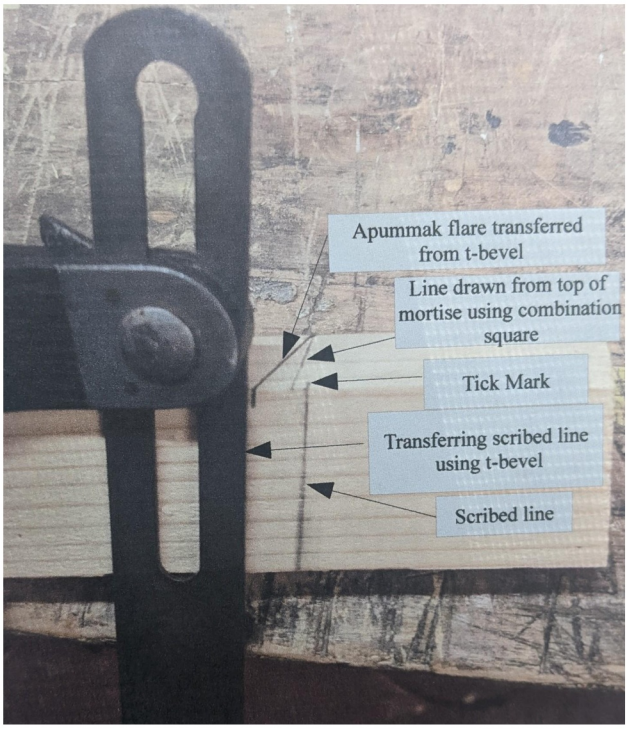
To determine the length of the ajât at the top of the mortises, the ajât is slid forward, uncovering the mortise below. The blade of the combination square is slid into the mortise resting on the top edge of the mortise. The tick mark is carefully positioned on the inner edge of the apummak. A vertical line is drawn to the top of the ajât. This marks where the top of the ajât will fit into the top of the mortise. Repeated on the other end of the ajât, the distance between the vertical lines is the distance between the mortises at the top aft end.

4. Capturing the appumâk flare and transferring it to the ajât

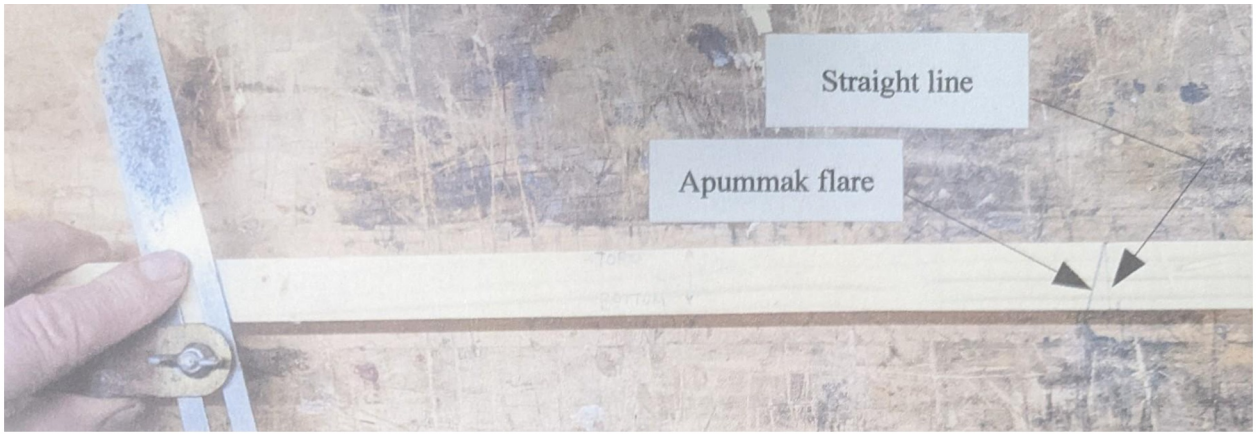
The apummak flare/angle close to the mortise locations is captured using a t-bevel, as illustrated in the picture. The handle of the t-bevel sits on a piece of wood lying across the apummâk and blade is pushed against the apummak. The angle is on the ajât, starting at the top of the vertical line drawn in the previous section, shown in the picture below. The lines drawn by the t-bevel are the length between the apummâk from the top of the mortise to the bottom of the ajât.



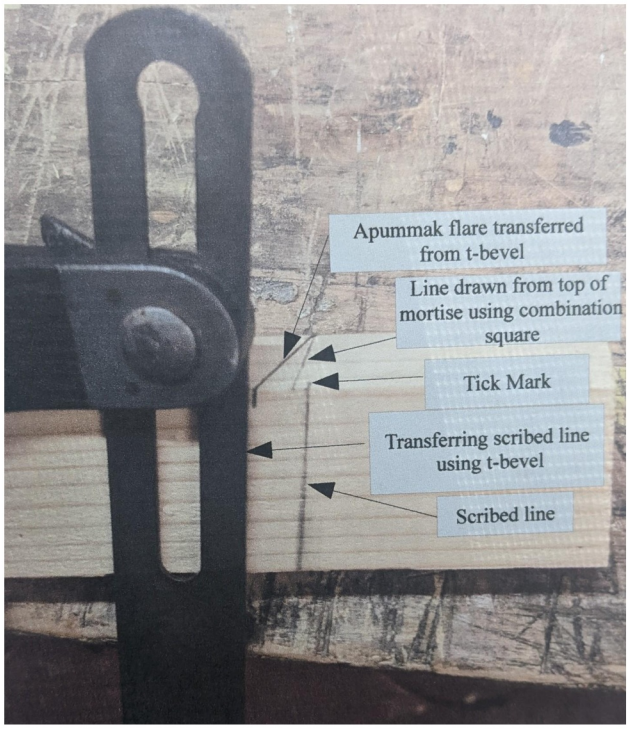
5. Carrying the lines around the ajât



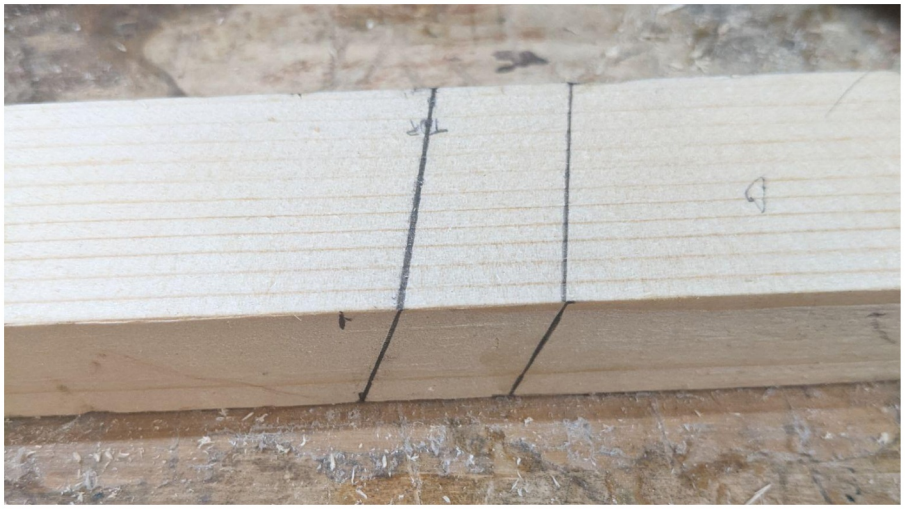
The image on the left shows a 2nd t-bevel which has captured the curve of the apummak from the scribed line. The line is transferred over to the tick mark at the bottom edge of the apummak flare line. Now these lines are carried around the ajât using the two t-bevels. This is down on both ends of the ajât. If the ajât were cut along these lines, the resulting would slide into place. The top of the ajât lies on the top of the mortises, ready to be secured with dowels. But these ajât will have tenons. And so, using a marking stick, the thickness of the apummak is added as shown in the picture below.



5. Carrying the lines around the ajât



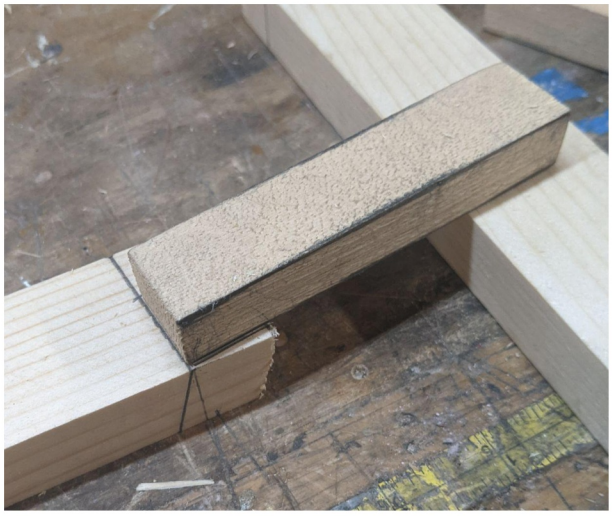
The image on the left shows a 2nd t-bevel which has captured the curve of the apummak from the scribed line. The line is transferred over to the tick mark at the bottom edge of the apummak flare line. Now these lines are carried around the ajât using the two t-bevels. This is down on both ends of the ajât. If the ajât were cut along these lines, the resulting would slide into place. The top of the ajât lies on the top of the mortises, ready to be secured with dowels. But these ajât will have tenons. And so, using a marking stick, the thickness of the apummak is added as shown in the picture below.



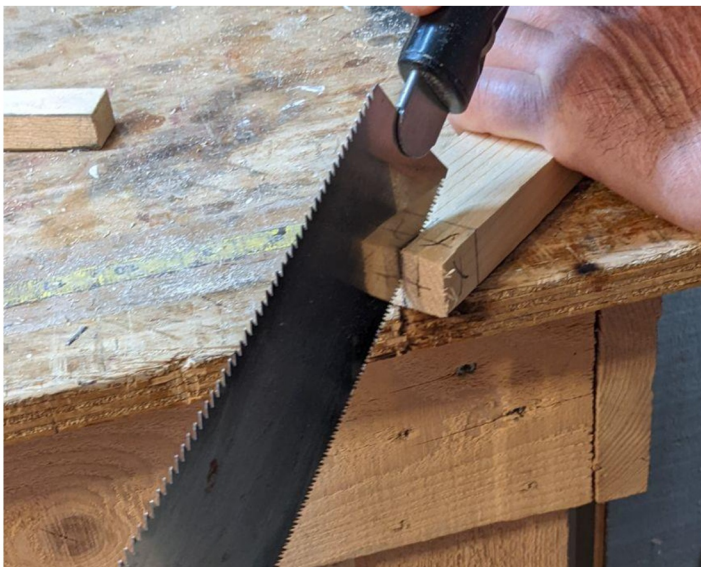
6. Marking and cutting the tenon

The excess wood at the ends of the ajât are removed and then the width of the tenon is marked with a marking stick, as described in the section with the box. The end of the marking stick is aligned with the pencil line. That line is not at 90^0 as with the box, but at an angle (see photo below). Note the wood at the edge of the tenon that will be removed from the ajât due to the curve of the apummak. If the marking stick is slid along the scribe line to the other side of the ajât (the narrow end of the curve in the apummak, part of the tenon would be in air. This is why the tenon is always on the wide side of the apummak.

REPLICATION



The line is carried around the ajât and the material to be removed is marked with an X. The wood is removed using a Japanese pull saw.



REPLICATION

Another marking stick is used to scribe the thickness of the tenon. Again x marks the wood to be removed and a Japanese pull saw is used to remove the wood. Finally, the tenon edges are rounded.

REPLICATION

The edges of the ajât are removed using a tablesaw with the blade set to 45^0, and then rounded using a rasp and sandpaper. Note in the image below one ajât is wider and thicker. That is the ittivik, extra strength is needed to carry the paddler's weight getting in and out of the Kajak. A second ajât is made from hardwood (red oak); that is for strength for the tukkigummiak (foot rest).

REPLICATION

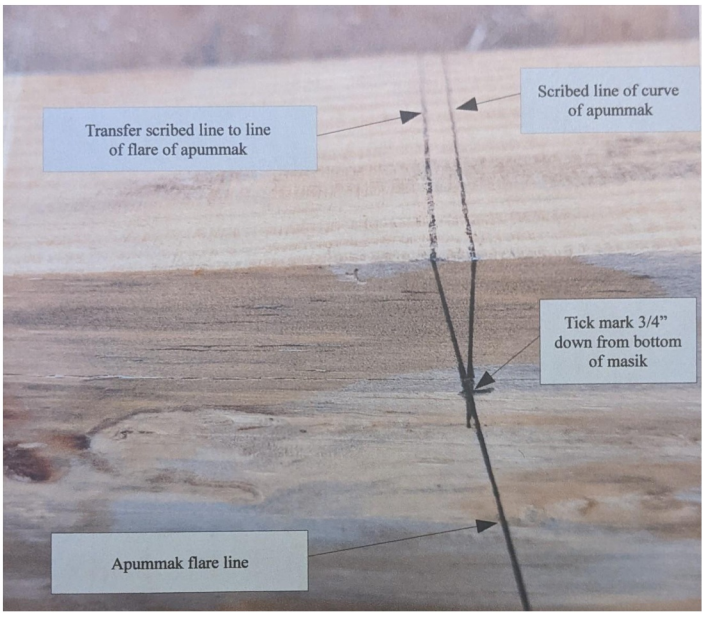
C. Cutting The Masik For a Kajak

The Masik is made from untreated southern yellow pine. Any strong wood can be used. Wood with a curve in the grain to match the shape of the masik would be better, or a laminated masik can be used.

There are no mortises for the masik. The bottom of the masik lying on the apummak is scribed and a tick mark is added just as with the ajât, as seen in the photo above. The bottom of the masik will be down ¾" from the top of the apummak. So, ¾" up from the bottom of the masik will be at the top of the apummak. Measuring up ¾" vertically from the bottom of the masik, a tick mark is made marking this point. This is illustrated in the photos below.

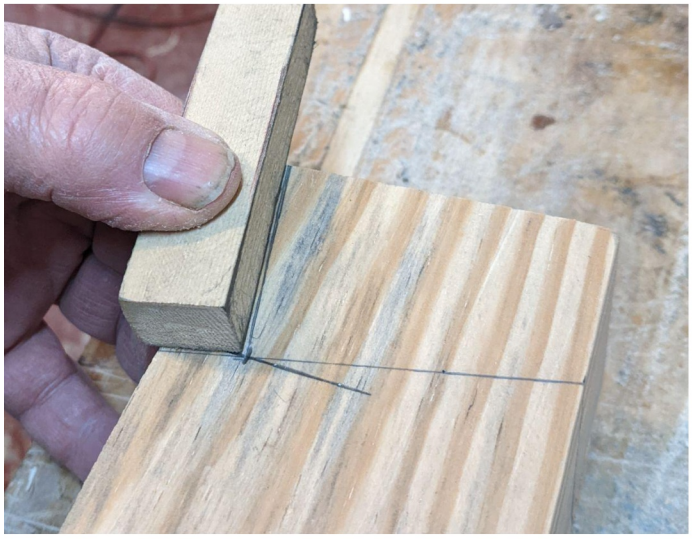
REPLICATION

The flare of the apummâk is captured on a t-bevel, as with the ajât, and transferred to the masik through the point ¾" up from the bottom of the masik as illustrated in the photos below. The scribe line is then transferred to the line using a second t-bevel, as illustrated in the photo below,



REPLICATION

The photo below illustrates marking a line perpendicular to the line defining where the masik lies on the apummâk's sides. This line is for where the masik rests on top of the apummak. Again, X marks the wood to be removed.



Now with the wood removed, the masik rests on the apummak, as shown in the photo below.

Shaping the Masik

The height of the masik is determined from the line drawing. That would be the center line point shown in the photo below. There needs to be some wood above the inside of the apummak, so points are set there on both ends of the masik. A trial shape is made using a flexible piece of wood, spline. That is corrected as needed to ensure symmetry and the corrected points marked with a pencil. Nails in the masik at those points hold the spline in place and the curve scribed. The lower curve is then drawn. Normally the lower curve would intersect the masik at the ends ¾"down. But here it was decided ¾" was not needed. The shape is cut using a band saw.

REPLICATION

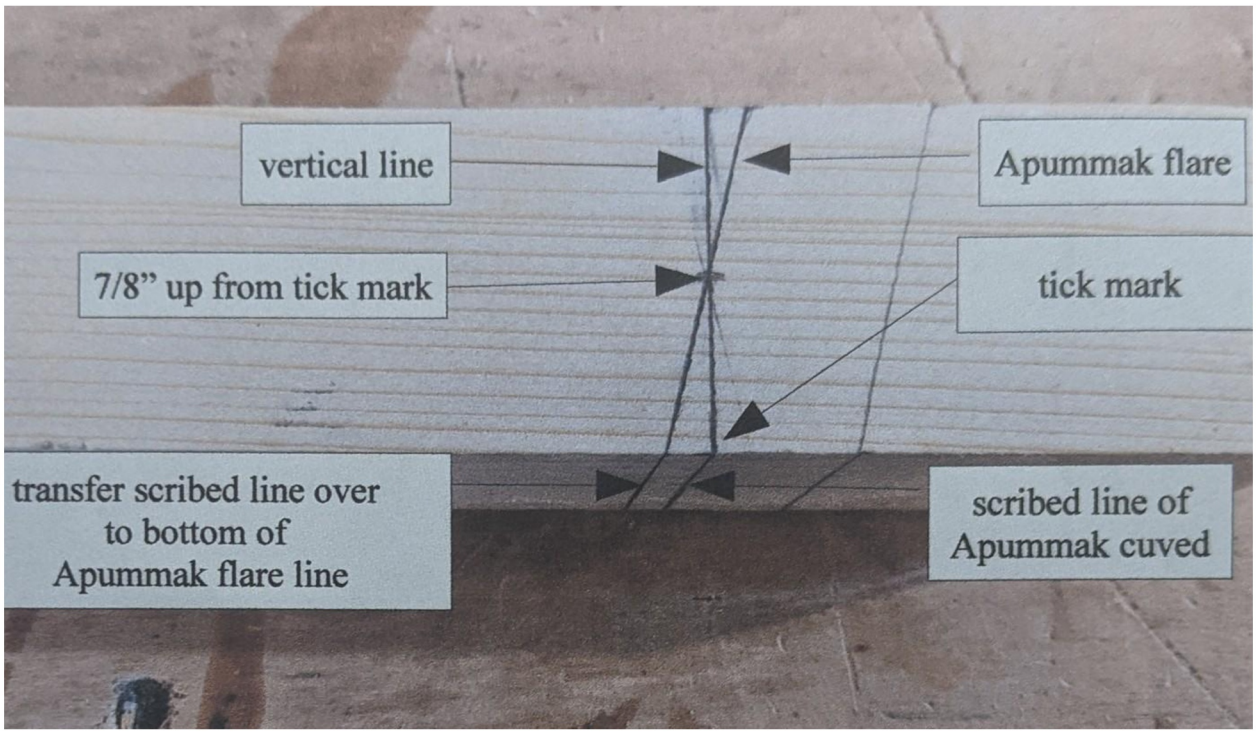
After some sanding, the masik is set on the apummâk. The ends of the masik will be cut flush with the outside edge of the apummak, and it will be lashed and doweled in place.

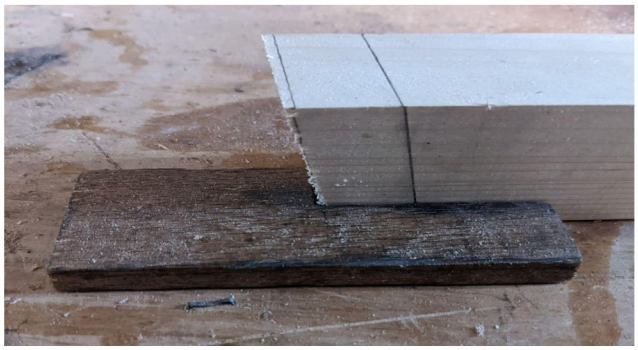
Cutting the Seqqortarfik (Curved Deck Beams)

The seqqortarfik are between the masik and tukkigummiak (foot brace). Unlike the ajât, the tenon is on the bottom of the seqqortarfik to maximize leg room. The forward stringers, which form the deck, are supported by the seqqortarfik. In the picture below, a stringer is placed where it will sit on the masik and back to the tukkigummiak (foot brace). Straight pieces of wood have been fit through the mortises of the seqqortarfik. Now the height of each seqqortarfik can be measured from the bottom of the straight wood in the mortises to the bottom of the stringer.

As before, the seqqortarfik is placed on the apummak at the proper location. The apummak curve is scribed on the bottom of the seqqortarfik, and a tick mark is made on the side as shown in photo below. A vertical line is drawn from the tick mark, and a mark is made ⅞" up from the tick mark — ⅞" because that is the distance from the bottom of the mortise to the top of the apummak. The apummak flare is captured on a t-bevel, as before, and transferred to the seqqortarfik passing through the mark at ⅞", as shown in the picture below. The apumak's curve scribed on the bottom of the seqqortarfik is transferred over to the bottom of the apummak flare line using a t-bevel. And the lines are now carried around the seqqortarfik. A second set of

parallel lines are drawn for the tenon thickness, the lighter line in the picture. These lines are cut using a Japanese pull saw. The tenons are marked using the marking sticks. X marks the wood to be removed.

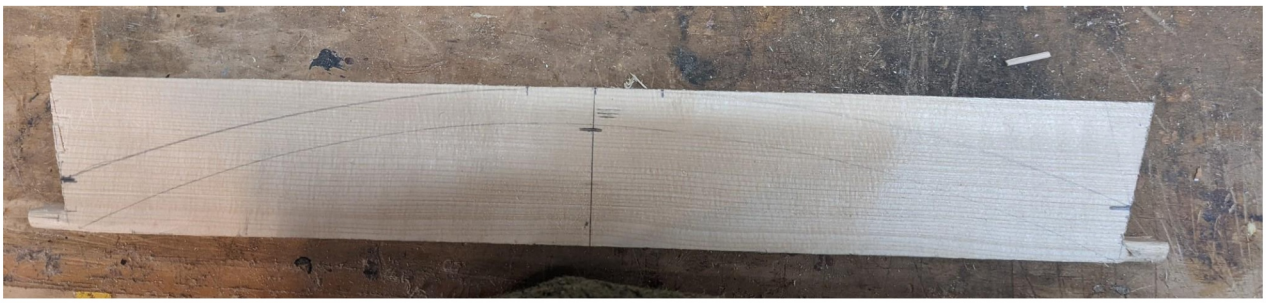




REPLICATION

Knowing the height of each seqqortarfik, they can be marked with curves as shown below thinking of the load they will have to bear from deck gear, and Kajak straps when lashed to the vehicle.

Once cut, seqqortarfik will be rasped and sanded.



REPLICATION

Now that the ajât, masik, seqqortarfik are all prepared they can be fitted into the apummâk. As shown in the pictures below, a string is run from the bow to stern, held in place by the ends of the apummak. Centerlines on the stations and centerline tick marks on the ajât, allow a check of symmetry. To make corrections to achieve symmetry, the apummâk are slid minutely in opposite directions. That is done holding the ends and "rubbing" them against each other in a fore-aft motion while watching the combination square sitting on the centerline, as shown in the photo below. The line will move to the blade bringing the Kajak into symmetry. Once the Kajak is symmetrical, it is time to peg the apummâk together at the bow and stern, and peg and lash the ajât, masik, seqqortarfik.

REPLICATION

REPLICATION