

The Beginning of Fiberglass Kayak Building in Oregon

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Fiberglass kayak and canoe building helped launch many new Oregon boating enthusiasts and propelled the infant whitewater boating community to explore new rivers and reaches. There is some fogginess in this story as it now stretches back more than 40 years but this is reported here the best we can remember. The first molded fiberglass kayaks were built in Corvallis and Eugene in 1974. But the training, techniques, and even the original mold came from the San Francisco Bay Area.

My adventurous brother, Gene (now a PhD physicist and retired fellow with Oak Ridge National Laboratories), and I began by enjoyed the wonders of open canoeing. While we were Boy Scouts, Gene saw an advertisement in *Boy's Life* for a pre-fabricated canoe kit. The persuasive Gene convinced me to join him in purchasing this kit. However, to describe the actual canoe as "pre-fabricated" was an incredulous stretch of the truth. After ordering the kit and months of delay we were finally notified that the kit had arrived at a railroad freight station. Our father drove us down to the station to pick up our kit. We kept looking for the kit on the freight dock until finally an attendant point out a box and some wood strips. The pre-fabrication turned out to be some vague instructions and square plates of flat fiberglass that were to be screwed onto a frame made of the wood strips. The fiberglass plates then needed to be sealed by putting fiberglass strips between every plate joint. The fiberglass cloth and resin provided in the kit proved to be totally inadequate for the job. But with our father's help and many additional purchases of fiberglass and other materials the canoe was completed.

While the canoe construction proved to be a much more difficult than expected the end result led us to many wonderful adventures. We would often take our canoe out of Pete's Harbor in Redwood City and paddle in the sloughs and channels along San Francisco Bay. Usually the Bay was a wonderful place to explore. We would often paddle by the derelict Frank's Tannery where sailors were building ocean-going catamarans and trimarans. The skilled fiberglass work on these vessels was inspiring to see and it stirred thoughts of sailing in tropical seas.

One memorable trip our unfortunate dog, Lucky, was along for the ride. It began to rain and everyone, especially the dog, was wet and cold. Then while attempting to pass under a low bridge on the outskirts of Redwood City it was discovered that the tide was in and the canoe was too high to get under the bridge. Only by pushing down on the boat and doing the limbo beneath the bridge girders could the canoe get past this obstacle. Alas, the dog forgot to duck at one of the girders during a "thrust" forward and was pinched between a canoe thwart and a girder. By the time the canoe had finally emerged into open water the dog had just about had it. As the canoe glided into the harbor channel a large piece of buoyant dock foam floated by. Poor Lucky made the unwise decision that this was land and he desperately wanted back on solid ground. As the canoe moved past the foam Lucky stretch out his front paws to climb onto the foam. Of course it moved away and Lucky fell into the frigid water and had to be hauled back into the canoe. By the time Lucky was finally home his ardor for canoeing had ended.

In another early adventure Gene and I canoed the Russian River along with two friends, Bruce Skeehan and David Schrah. Bruce had made a wood and canvas kayak in the High School shop class. David was in the canoe with Gene and me. We made a weekend of it, packing camping gear and even a Colman Stove in the canoe. By sheer luck we didn't tip over and spill the entire camping contents into the river. We were told after this trip that many others had lost all their gear this way. But we did have our lifejackets on! At some point we hit log in the river and one of the seams in our canoe opened up. The rest of the trip Gene and I paddled frantically while David bailed the rising water from the boat. Brother Gene and I went to Menlo Atherton High School in the Bay Area. Across the street was the Stanford Research Institute (SRI). One day the newspaper had a notice that the Loma Prieta Chapter of the Sierra Club was hosting a meeting at SRI where fiberglass kayak building would be discussed. Students were building wooden and canvas kayaks in the High School shop but the idea of a sleek fiberglass kayak was intriguing. We went to the meeting, learned about whitewater boating, and signed

up to attend a boat building demonstrations.

The approach used to teach kayaking building was something like an apprenticeship and this was the model that would serve the early fiberglass kayaking building in Oregon. The “teacher” was usually someone who had helped make at least one previous kayak. The steps involved: preparing the fiberglass mold with polish and mold release; cutting layers of fiberglass to fit the molds for the two halves and seat; catalyzing the fiberglass resin and working it into the fiberglass layers; trimming the semi-hard glass; seaming the two halves together, and finishing by installing the seat, foot braces, and end-plugs. The amazing thing was that with close attention most anyone could make a pretty good kayak in about a day. Gene and I, along with our close friend Lee Harrison, built numerous kayaks and learned to do the pull-putta and Eskimo rolls. We boated through High School and our undergraduate college programs.

One memorable friend and mentor was the highly competitive Tom Johnson. Tom was older than most competitive whitewater racers having retired with a physical disability (injured shoulder) from the Los Angeles Fire Department. Nevertheless, Tom was fiercely determined racer. Tom would eventually be selected as the Western US Olympic Team coach for the Munich Olympics (when whitewater kayak and canoe slalom racing was staged in a specially constructed stadium). He always said that “you should never let your equipment be an excuse for not winning.” What he meant was that you should always have the equipment that gave you the best chance to win. Tom was a master fiberglass craftsman. On a trip to Hawaii Tom observed the wooden outrigger racing canoes that the islanders were using and decided he could make a fiberglass version that was lighter and cheaper. He made his own mold and began selling these racing canoes to boaters in Hawaii. Tom became very popular and he and his family were even flown to Hawaii to watch his canoes in action, which made his wife very happy. Tom even got to race with some of the teams. Somehow Tom convinced DuPont Chemical Company to give him enough Kevlar to make a whitewater slalom boat. At the time Kevlar had just been invented. Kevlar was first targeted as a new component to make automobile tires puncture resistant. The cost of the experimental Kevlar provided Tom to build this boat would have been more the \$10,000. The racing boat he built weighed much less than other contemporary models, but was strong and resistant to tears and punctures.

Eventually, Gene and I designed our own boat, which we called the “Bhen chot” boat. I regret to say that this is an Urdu swear word I learned from a Pakistani classmate of mine at UC Berkeley. We built the boat “plug” by gluing together layers of Styrofoam and then shaping the block with knives, shaping tools, and sandpaper. Once we had the shape we wanted, we need to coat the entire plug with Elmer’s white glue because catalyzed fiberglass resin and Styrofoam react chemically, creating a gas. A temporary flange was then attached to the plug. Next we coated the plug with mold release and created the two mold halves. We were mostly successful at coating the plug with glue but there were a few spots that bubbled up due to Styrofoam/resin contact. These spots all needed to be repaired.

The Bhen chot boat proved to be tremendously maneuverable with lots of rocker. What it gained in maneuverability however, it gave up in speed. Gene made two clean slalom runs at a race in California, but no matter how clean his runs were he couldn’t make up for how slow the boat was and he ended up in 4th place with the 4th and 5th best runs of the day. We made a boat for each of us, and they were a lot of fun on the river. Alas, both boats were eventually stolen while we were at college.

In 1972 Gene graduated from Harvey Mudd University and moved to the University of Oregon. I followed one year later, moving to Oregon State University, having gotten my Bachelors and Masters degrees at the University of California at Berkeley. Being one hour away from each other allowed us to get together on weekends to train and explore Oregon’s wonderful rivers.

My first use of fiberglass in Oregon was not a boat building effort. I had been serving as a Teaching Assistant at the UC Berkeley Forestry Camp in Meadow Valley, CA during the previous summer. In the middle of the camp was a 400+ year-old sugar pine (*Pinus lambertiana*) that was rotten at the base, which made it unsafe. The tree had been felled for safety but it would have cost too much to remove

the telephone and electrical wires to allow a log truck to move the tree to a mill. So this noble tree was being cut up for fire wood. The camp directors decided to allow students and staff to cut “rounds” as souvenirs. I cut several using a massive chainsaw with a four-foot bar (couldn’t quite cut all the way through). I brought one round up to Corvallis and the first day I was there I put a fiberglass band on the back to prevent it from splitting. Then I turned the round over and applied fiberglass resin to the surface to create a smooth and brilliantly red surface. Everything seemed to be going well until a strange dark cloud drifted over. Suddenly small black flecks began falling into the wet resin. This was my introduction to field burning. I later learned that almost all the rounds cut for souvenirs split apart except for the two I prepared and the one I gave my brother. Of course the fiberglass bands on the back of these rounds is what kept them together. I still have my largest round and a smaller round is at my former office in Corvallis. Gene still has his round.

In late 1973 or 1974 I was able to purchase a mold in California and bring it up to Oregon so that we could build boats here. The picture below is perhaps the first fiberglass kayak built in Oregon. The tree that it is resting on is still at the corner of 13th Street and Western in Corvallis. You can partially see the two mold halves in the background. Soon others wanted to make their own kayaks and we employed the “apprenticeship” approach of getting people to participate in a boat building so they could learn the steps and techniques.



First molded fiberglass kayak built in Oregon, probably early 1974

Costs were always an issue, especially in college towns like Corvallis and Eugene. At some point I learned that you could get a much lower cost for resin and fiberglass if you order in bulk. With all the excitement about building boats I ended up ordering a 55-gallon drum of resin. It showed up one day at my door but it was leaking. I reluctantly rejected the delivery and was sent another drum. Then I got a call from an insurance company that asked if I wanted to buy the damaged drum. I ended up buying it for \$50 bucks and now had more than 100 gallons of resin or enough to build 30 or more boats! Amazingly we soon exhausted that supply and had to order more resin.

One mold wasn’t enough. There was demand for more boats and different designs. My brother and I, along with friends like Darrel O’Brien, Bob Porter, and Jim and Jania Henderson, wanted newly design whitewater slalom and downriver racing kayaks. We learned that you could legally make a mold from another kayak if you somehow changed the design. This led to us buying some factor-defect boats with the latest racing designs and then modifying them so we could make our own molds. We also rented molds from California and Washington. In my barn today is an Interceptor I downriver racing kayak

which was made as one of four boats built while renting a mold. This design remains fast even by today's standards but is extremely tippy.

For a number of years we worked with Corvallis Parks and Recreation Department to teach kayak building. They allowed us to use a barn in a newly acquired park to build boats under cover. The one drawback with this otherwise delightful setup was that this barn had its own fauna. One evening we cleaned and polished the molds for building boats the next day, only to return to find an owl had pooped in the molds and undone our preparations. We even did a boat building demonstration at the Children's Farm Home, just off of Highway 20. My brother-in-law was working as a teacher there and he arranged for me to build a kayak to show the technique to the students.



Gene and George Ice racing in the US National Whitewater Championships in 1977 held in West Virginia with a boat they built.

In 1976 someone at Whitman College in Walla Walla, Washington heard about the boat building we were doing in the Willamette Valley. They called me and asked if I would teach an experimental kayak-building class during their interim period after New Years. Foolishly I accepted. January 2 I attempted to drive up the Columbia Gorge with my 65-Chevy station wagon loaded with one kayak, two kayak models, hundreds of feet of fiberglass cloth, 30 gallons of resin, polish, mold release, brushes, squeegees, and other instruments of the trade. When I got to the gorge the day after New Years the highway was entombed in ice. The road was closed to traffic for four hours while I waited in Portland. Finally they opened the road up but I'm not sure why. It was a slick sheet of ice and packed snow the entire way to Walla Walla. I limped into Whitman at 3 am in the morning with one chain still on my car, having already thrown three others in my migration up the Columbia.

The next morning I had to be up at 6:00 am for breakfast and class started at 8:00 am. Somehow I got through that first day and we ended up having a great experience. Each student got to make his own kayak and paddle, and we used the college pool to teach the Eskimo roll. On the final day of the class we pushed off a snow bank into the Walla Walla River and everyone got their first experience at whitewater boating. It was a wonderful experience. There were however, some aftershocks from that

experience.

When I got back to Corvallis I had missed the first day of classes. I was taking a Research Seminar in the Forest Engineering Department. That first day students selected when they would present a seminar on their thesis research. Being absent that first day I was assigned the first seminar. Having not been to that first class I was clueless! Fortunately the night before that first seminar the Department Secretary called me. She let me know I would be giving the next day's 1-hour lecture. Needless to say I was in a panic but somehow got my thoughts and overhead put together in time to make a reasonably coherent lecture.

The experimental class was so popular and highly rated by the students that the next year I was asked to teach it again. I declined but suggested that Ron Matson would be an excellent candidate. Ron was asked and he accepted. When Ron got back he also reported that the class had gone well, except for one student. This kid had been one of the stars in my class. He was really a nice guy. But he kept bugging Ron by saying, "Well that's not the way that George showed us how to do it!" Perhaps this is an example that fiberglass is so forgiving that you can use some different techniques and still get excellent products.



Kayak building class at Whiteman College, Walla Walla, WA

Of course there were some disasters and tragedies along the way. One weekend I was building a vacuum-bag C-2 and used bad catalyst. I continued to pull a vacuum on the mold all night waiting for the resin to catalyze, but it continued to be wet. Finally I had to remove the bags and apply additional resin that had been catalyzed "hot." Another winter weekend I decided to sneak into the basement of the Chemical Engineering Building at OSU, where it was dry and warm, to put the finishing fiberglass layers on a wood-strip canoe. Unfortunately the workshop in the basement vented into all the offices upstairs. The pungent smell of the catalyzing resin caused a professor to come downstairs and lecture me about the "hazard" I was creating.

One of the early and enthusiastic supporters of fiberglass boat building in Oregon was Bob Bostick. Bob was an instructor in the OSU Outdoor Recreation Program. He and his friends built kayaks and trained at some of the early pool sessions held by the Willamette Kayak and Canoe Club.

Unfortunately Bob was killed when his motorcycle was struck by a car blindly passing another vehicle while cresting a hill. And Bob Porter, such an early proponent of whitewater boating and boat building,

was killed in a kayaking accident on the upper Kings River in California. Bob had moved to California where he was working as an oenologist at a winery. He was famous for having built a fiberglass kayak in the winery where he worked. I'm sure it provided the wine with a unique and subtle flavor...

Château resin?

When you learn to build a boat from scratch you also learn some of the key techniques you will need to repair it. The 1976 US National Whitewater Championship Slalom Races were held on the Kern River, California. A drought in California had caused flows to be very low that year so there were lots of exposed rocks along the slalom course. During a practice run the day before the championships Gene and I bridged our C-2 on a sharp rock. Our boat broke nearly in half. That evening we feverishly sanded and dried the boat, then patched it together with resin and fiberglass cloth. Luckily it was very hot, and with a little extra catalyst, our patches hardened quickly. One of the more experienced C-2 teams was made up of the Langley Brothers from Bend Oregon. I remember them watching us work on the C-2 and remarking that it was, "a good thing you guys know your way around resin." I also remember wishing they would help with the huge job of putting the two halves back together. Nevertheless, our C-2 was ready the next day and we boated well.

Boat building was and still is a lot of fun. It is wonderful to run a river in a boat you have built yourself. Many friends were made over cans of catalyzed fiberglass resin. I encourage everyone to build a boat, or two, or even more!