The Umiak: Constructed and Designed to be Swift, Strong, and Light

The umiak—the Inuit women’s boat—was designed to be light and strong. It had to be sturdy enough to carry the weight of up to thirty people, yet light enough to be carried by a few; it had to be strong enough to protect its passengers from the dangerous Arctic seas, yet flexible enough to bend and move with daily beachings and maneuvers around ice floes. The umiak was ultimately constructed to be as light and flexible as possible, and its few structural components allowed it to fulfill its designed purpose as a ship that served multiple purposes as both a vehicle for travel and shelter and a vessel for hunting.

Let’s begin with the most exterior elements of the model, and work our way inwards. As the umiak is technically a skin-boat, it was made out of sea mammal skin rather than strakes (planks) of wood, which allowed it to be light enough to carry. The covering-skin was often that of a bearded seal or walrus—it took six to fifteen hides to provide the skin for an umiak, depending on its size—and the frame of the vessel was usually made from driftwood, but occasionally from bones when no wood could be found. Looking at the model, one might think that the covering skin was stretched tightly across the umiak, but the frame and the skin were frequently left unattached and even purposely separated to allow for the skin to move during frequent impact (e.g., landing every night during nomadic journeys and inevitable collisions with sea-ice).

The exterior hide was soaked in either pitch or animal fat so that it would be watertight; animal fat was preferred because it achieved a similar effect to pitch but was less expensive and did not detrimentally stiffen the exterior of the vessel. The hide, once initially soaked, was
treated at roughly four week intervals with oil to keep it supple and waterproof. It was imperative that the outside of the boat be flexible and able to handle a fair amount of damage, which occurred regularly when Inuit men hunted from the umiak. It was also important that the umiak could be repaired quickly and without much effort in the case of inevitable accidents. It takes just a few hours to strip off the exterior skin from an umiak and re-tie a new one onto the same frame; a wooden ship—if there had been enough wood to construct one—would be a much lengthier process.

So how did the umiak travel such large distances? The paddle was earliest form of propulsion for the umiak, followed by oars (paddles are switched from one side to another, while oars come in pairs and are pulled simultaneously). Sails are present on our model, and often were on full-scale umiaks, but not always; they helped the vessel make longer and swifter journeys. The model-maker cut the sails from the same skin that formed its exterior, but umiaks in Labrador tended to have sails made from grass-mats and the thin skin of animal entrails rather than the thicker skin used elsewhere on the boat. After European contact, the material of the sails almost immediately switched to cotton, and have remained so ever since. The mast of the umiak was inserted into a set cross-board; it was taken down and the sail folded when the boat landed. The sail could then be used as blankets, and the mast as a place to dry clothes or to prop up the umiak to make it a more sizable shelter on land. Everything about the design of the umiak was ideal for the nomadic lifestyle of the Inuit: adaptable and easy to de- and reconstruct.

We’ll now take a closer look at the wooden components of the umiak. The first thing that is obvious to the viewer is that the model doesn’t seem to have too many structural elements. This is actually very representative of a real umiak; wood was hard to come by, and by strategically placing the “ribs” of the ship at certain locations—one notices that there are more
frames near the middle of the vessel than towards the ends—the Inuit were able to keep the boats light while also conserving valuable wood (remember: these boats were carried over land, sometimes for quite a distance, so they had to be light enough to be lifted!). You’ll also see that the boat has a flat bottom, and no keel—this was to stabilize the boat during its beachings. If there had been a keel, or a “V-shaped” bottom, the umiak would have rolled to one side when it was pulled onto the ice, and the belongings of its passengers—often carefully arranged and packed away—might have fallen and been spoiled by the saltwater. The umiak had unusually hard chines (sharp changes in angle from the bottom to the sides, unlike the “U” shape one might be more familiar with); this was useful because the umiak was often put on its side and used as a temporary shelter. Having sides without a curve allowed it to stay on the ice without rolling. The frame, cut from single pieces of wood, had the potential to last lifetimes.

The umiak was built symmetrically, much like the kayak: the symmetry allowed early umiaks to reverse direction quickly to avoid obstacles en route. Early Inuit vessels had no rudder and were steered by means of the oars and a stern-pole, which was dragged through the water; once the rudder, as seen here in the model, was introduced, the traditional style of sailing where frequent turns and reversals occurred fell out of fashion. The bands of wood that cross over the umiak were benches that the oarsmen and other passengers would sit upon. Stem- and sternposts (located at the front and back of the vessel, respectively) were almost always plumb (vertical), which helped provide more storage space and made it less likely that collisions would damage the ends of the ship. Not pictured on this model are the traditional spray covers, which women would embroider, and which extended up to two feet from the edge of the umiak to prevent seawater from drenching the boat.
If you look very closely at the oars, you can see an X-shaped cross where the wood is lighter (Fig. 1, p.b. Alona Bach). This is where the oars were lashed to the gunwales (top of the sides of the vessel). The same style of thin rope and animal-skin ties were used to secure the exterior skin to the frame—secured essentially only along the gunwales, as one can see!

When Yankee whalers arrived in 1848, they scoffed at the umiak, but their whaleboats could not compete with the swifter, stabler, and flexible Inuit boat. In the modern age, so many historic vessels have become obsolete—the bi- and trireme, the tall-ship, the steamship—but the umiak is still used today in Labrador, looking almost identical to how it has looked for centuries, with the exception of an added outboard motor. Some may look at a boat like this and call it “primitive,” a word deriving from the Latin word *primus*, meaning “first.” And that at least is true: umiaks are the direct descendants of vessels designed nearly ten thousand years ago, and are born out of a timeless shipbuilding tradition. They were constructed out of pure necessity, and have evolved to perfectly serve their intended functions. They are simple, but their simplicity borders on the ingenious: it allowed them to fulfill a huge range of purposes in an environment where resources were scarce.

**Bibliography**


Alona Bach. Photo used with permission.

Fig. 1: The “X” on the oar of the umiak, where it would have been lashed to the gunwale. Photo by Alona Bach.