

COASTAL CHARACTERS

Mike and Michi in front the gigantic head of the blue-whale skeleton at the Beatty Diversity Museum on the University of British Columbia campus.



Mike DeRoos, Master Skeleton Articulator

From sea otters to blue whales, Mike DeRoos is gaining a world-wide reputation for re-assembling animal skeletons from his Saltspring Island home

BY MARIANNE SCOTT

A FLOCK OF COLOURFUL rubber gloves and rain slickers festooned the fences in Mike DeRoos' yard. "They're airing out," said Mike's wife, Michi Main. "After we cut up that humpback last week, they still smell even after repeated washings."

Mike, tall, lean, with a small dark beard, clad in the well-worn clothes and gumboots typical of the Saltspring lifestyle, led me to a corner of his spacious property where a compost box laden with horse manure embraces the bones of that humpback. It will take a year or two of burial in the hot—sometimes steamy—compost for its microorganisms to eat the remnants of the whale's flesh and oil. The couple's daughters, Miya, four, and Naomi, two, happily skipped along with us, unable to resist jumping into puddles. "We got the call last weekend,"

he continued. "A dead, two-year-old female humpback was caught between the nets of a fish farm in Ross Passage near Ahousaht. We don't know how

she died. We contacted the Royal B.C. Museum and they commissioned us to retrieve its bones."

Mike and Michi loaded their pick-up

To mimic the movements seen in the wild, Mike and his team will build a steel armature, which can be hidden within the bones.



truck, and with the kids, set off for Tofino. Aided by volunteers, they spent two days "flensing" (stripping blubber and skin) the nine-metre, eight-ton marine mammal. They use hockey-stick shaped flensing knives, with a curved portion made of sharp metal. "It's a muscle-demanding job," said Michi. "And smelly. Especially when the carcass has started to decompose."

Mike, who's put together whale and marine mammal skeletons for over a decade, won't be assembling this one. When the humpback's bones are clean, they'll join the Royal B.C. Museum's collection and provide DNA research opportunities.

THE SKELETON BUSINESS How does someone become a "skeleton articulator" as the art is known? In Mike's case, he had a long informal, then formal apprenticeship. "I used to go for walks with my surgeon granddad when I was a boy," he said. "We'd find bones on the beach, dead animals in the woods and road kill. We'd dissect them later. I learned a lot that way."

In addition, he learned carpentry and house building skills in his dad's Vancouver renovation business. He started as a toddler putting away shop tools, then slowly learned the hands-on skills that have helped him create the devices and materials required to assemble and display skeletons. He also spent weekends and holidays on the family sailboat and knows >

Flensing a humpback whale in Tofino for the Royal B.C. Museum's collection.



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Mike using his construction skills with his father, Bob, to install a blue whale flipper.

boat repair. A biology degree from UVic followed by years of Fisheries and Oceans contracts allowed him to study marine mammals in their natural habitat as far north as Alaska. His “fix-it” skills made him a popular mate on research ships.

In 2000, Mike articulated his first sea otter skeleton during a six-week course at Bamfield’s Marine Science Centre. Subsequently, he worked summers at

Telegraph Cove’s interpretative centre where he continued to perfect his articulation talents. “I assembled the skeletons of an eagle, harbour seal and the fin whale that’s now suspended from the ceiling.”

The fin whale had been jammed onto the bow bulb of the cruise ship *Galaxy*. After it was towed to Telegraph Cove, it decomposed on a nearby beach and the remnants were hung in the water.

Marine critters of all sizes consumed the whale’s flesh and the water eventually leached out most of the oil that fills a whale’s bones and provides it with buoyancy and food reserves. Trapped oil will turn rancid and smell.

In the meantime, Mike met Michi, who grew up in a fish-packing family. For her environmental biology master’s thesis, she studied the effect of tourism on the reefs of Thailand. She was there, underwater, when the 2004 tsunami hit. “I was safe,” she said. “But all I had left was a snorkel and a swimsuit. Mike flew out to bring me clothes and gear.”

ARTICULATING THE WORLD’S LARGEST WHALE

Andrew Trites, head of the University of British Columbia’s Beatty Biodiversity Museum, sought to add a blue-whale skeleton to its display. Serendipitously he discovered that a blue whale had been buried on a Prince Edward Island beach since 1987. In 2008, he asked Mike to join him and some volunteers to disinter and flense the whale. A tractor-trailer brought the bones to Victoria. After the arduous task of remov-

ANDREW TRITES

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ing the oil from the bones—using a hot vapour degreaser ordinarily employed to clean helicopter engines—Mike, with Michi's and other team members' aid, was tasked to put the massive skeleton into one suspended display.

I asked the pair how they fit all these bones into one whole. "We take a pile and lay them out, you know, right-rib-to-left-rib and so on. Some areas are harder, like the flippers that have digits, wrist, humerus and radius bones. They look like human hands and are connected with cartilage that rots away. So we'll take photos, X-rays and measurements. We assess the more ambiguous connections between the bones and focus on them for later reassembly."

Tying all these bones together and suspending them is both a skill and an art. Mike's building background helps, as does his experience in rigging sailboats. To support a skeleton, he fashions a steel armature, which can be hidden within the bones.

"The skeleton is missing tendons, ligaments and flesh," he said. "But the final form is rigid and we must thread the bones onto the armature like beads on a string. And we design the animal's posture mimicking how it lives in nature. That's where our past marine animal research helps. We want the skeleton to tell a story to the viewer—how a living animal interacts with its environment."

"For example," added Michi. "You'll see a sea lion lounging on a rock. That posture doesn't show its grace and beauty when it slices through the water. That's where the 'pre-thinking' of a skeletal display comes in. It doesn't move but appears to move."

SKELETONS AND BOATS Many skeletons are incomplete—injuries have destroyed or broken bones. To assemble and repair them takes a myriad of materials. There's much overlap with boating: epoxy, fibreglass, fillers, resins, adhesives, glues and expanding foam all find uses. Cartilage fillers are fabricated from foam, covered with modelling clay, then painted. Large replacement bones containing chopped fibre-

glass and resin are made in a rubber mold; smaller ones of modelling clay.

"To effectively put together a large skeleton," said Michi, "you must be a biologist, artist, metal worker, sculptor, molder and caster."

Skeleton articulation is not a full-time job for the couple, but sometimes it takes over their lives. In between articulations Mike works as a builder and boat repairer. As much as possible, the couple work together and share child-raising duties.

"Sometimes it's a disgusting, dirty job working on a carcass and skeleton," said Michi. "But there is nothing more rewarding than to watch people react to a whale skeleton. Some are moved to tears."

Their longer-term goal is to provide articulation services worldwide.

"It's a passion," concluded Mike. "We want to raise awareness one skeleton at a time. We want to raise awareness of the marine environment and to stimulate curiosity in children of all ages." 🐾

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