

Diving for Dead Wood

SUBMARINE WITH A CHAIN SAW FOR ECO-FRIENDLY LOGGING BY SARAH SIMPSON

Tangled, ghostly limbs barely tickle the water's surface from below. Elaborate roots grip lakebeds, though perhaps not as strongly as they did the forest floor. Such is the fate of millions of acres of prime timber—flooded in the wake of hydroelectric dams, sacrificed to make electricity.

Most of these drowned trees were left for dead long ago. But in western Canada, some of them are experiencing a reincarnation of sorts. Chris Godsall, a sustainable forestry specialist based in Victoria, B.C., has cut more than 1,000 submerged trees since January, a feat made possible by his invention of the world's first logging submarine.

Decades of previous salvaging efforts—mainly for felled logs that sank in rivers and lakes on their way to a mill—demonstrated that even trees that have soaked for 100 or more years remain pristine. A lack of oxygen in the stagnant bottom waters where they lie protects them from rot. Once dried, the waterlogged wood can become flooring, paneling, furniture, ceiling beams—anything a fresh-cut tree would be good for.

Godsall estimates at least 200 million trees worth some \$50 billion await harvest behind the more than 45,000 large dams worldwide. British Columbia alone could keep 30 logging subs busy full-time for at least 30 years, he says. But tapping this bounty has proved challenging.

Conventional efforts to cull underwater forests are inefficient or just plain dangerous. Sending divers with hydraulic chain saws—a common practice in Brazil and Malaysia—poses obvious health hazards; working from safer ground has serious limits. A typical North American operation, which might use



WATERLOGGED: Timber from a forest flooded under Lois Lake in British Columbia is lifted out of the water after being cut by Sawfish, a remotely operated vehicle seen in the background.

a crane anchored to a barge to pluck trees up by the roots and then lift them to the surface one by one, can go only about 60 feet deep. That puts 80 percent of the trees in an average lake out of reach, Godsall explains.

Eyeing the depths, Godsall founded Triton Logging—named for the man-fish of Greek mythology—in March 2000. Since then, he has enlisted the help of a dozen contractors to convert a factory-built ROV, or remotely operated vehicle, into Sawfish, a chain saw-wielding cutting machine that can dive at least 1,000 feet.

Working full-time since January at Lois Lake, an 8.5-mile-long, 450-foot-deep reservoir 120 miles north of Victoria, seasoned ROV pilot Craig Elder flies the Sawfish like a video-game junkie from a six-by-six-foot control room on a barge. The vehicle's eight video cameras and sonar device—connected to the control room by a thick cable—are Elder's eyes and ears as he navigates among labyrinthine branches of Douglas fir and cedar. "If you lose your concentration for three or four seconds, you're gone," he says. Untangling the tether from snarled branches using the ROV's awkward robotic claw can be excruciating.

When all goes well, Elder snuggles Sawfish up to a promising trunk, screws in and inflates a black air bag, and saws off the tree just below the screw. The tree shoots to the surface cut end up, hauled by what looks like a giant garbage bag. Elder can fell 36 trees on a single dive while workers on a tugboat remove the bags and hang the trees beneath a floating boom. The tug later tows the boom—trees dangling under it like crystals on a chandelier—to an unloading dock along the shore.

Although the heavy, saturated trees are 20 to 30 percent more expensive to haul to a mill than their dry counterparts, Triton keeps costs comparable to conventional logging by avoiding the expenses of building new roads, controlling pests and fire, and replanting trees, Godsall notes. "Everyone in the distribution



SAWFISH, operated by the Canadian firm Triton Logging, can dive at least 1,000 feet—as deep as any reservoir in the world.

of forest products believes there is going to be marketing potential for this," says Peter Keyes, a vice president for International Forest Products, the major U.S.-based wood exporter that has agreed to buy Triton's first harvest.

Every waterlogged tree salvaged is one living tree saved, Godsall figures. That eco-friendly appeal may attract specialty buyers, which means Triton's logs could eventually demand a higher price, Keyes suggests, especially if they win the approval of Vermont-based SmartWood, the only organization that offers third-party certification for salvaged wood. For forests, an idea that's all wet promises to be a good thing.

WORLD HUNGER FOR WOOD

- Nearly half the earth's indigenous forests have disappeared. Approximately 94 percent of all forest products consumed worldwide are harvested from the estimated 6.7 billion acres of original forest that remain; the rest is grown on plantations.
- An area of indigenous forest twice the size of New Jersey is cut every year to satisfy existing demand for wood products. Other threats—such as forest fires, illegal logging and clear-cutting for agriculture—wipe out another 64 acres every minute.
- Global demand for paper—the largest use of wood fiber—has increased fivefold since the 1950s and is expected to double again by 2050.

SOURCES: Forest Certification Resource Center/Metafore (www.certifiedwood.org); Forest Enterprises (www.forestenterprises.co.nz)

Homo carnivorous

ARE WE GENETICALLY OPTIMIZED TO DOWN CHICKEN WINGS? BY GARY STIX

The organization People for the Ethical Treatment of Animals entreats individuals to adopt vegetarianism as the "healthiest and most humane choice for animals, people and the planet." But don't stow away those carving knives just yet. Our carnivorous proclivities go back a long way—and

our ability to cope with the drawbacks of meat eating (elevated cholesterol, parasites and infections) may derive from certain genes.

Meat eating, in fact, may have a lot to do with the *sapiens* tag that follows *Homo*. For our ancestors, meat supplied a more concentrated package of calories and nutrients than