The Resolve Composites team, from left to right: Amy Russell, Leitha Haysom, Nick Bigeau, and Bruce Thompson. Photo courtesy of threesixfive media. Credit also Climate Stories Atlantic.

From Wind to Water

By Zack Metcalfe

One Nova Scotia company's game-changing recycling process not only turns old wind turbine blades into boats, it also provides a huge opportunity for recyclers looking to get into the fibreglass game.

Individual sheets of fibreglass are notoriously difficult to recycle. Once layered together with resin — to form bathtubs, roofing panels, or aircraft components — peeling them back apart usually means shredding the end product into tiny pieces, then submerging them in tubs of heated solvent under high pressure. Needless to say, the recovered shreds of fibre and glass are not especially useful, or cheap.

This is a problem for the wind industry, whose turbine blades are essential hundred-metre-long fibreglass tubes. Once they've served their 30-year-lifespans, unloading them on landfills is unpopular at best, banned (in some countries) at worst.

Part of the solution has been the development of recyclable resins, more easily broken down by traditional solvents, and at lower temperatures and pressures. When built of recyclable resins, blades can be resolved into their constituent sheets of fibreglass, intact and reuseable, provided you can find a tub large enough to submerge the entire blade…and a thousand tonnes of solvent to fill it.

Getting around the "submersion problem" took a team of boatbuilders from Pleasantville, Nova Scotia to work out. While researching sustainable boat materials, Nick Bigeau — a professional boatbuilder for 15 years — came across recyclable resins, and the possibility of recovering and reusing intact sheets of fibreglass from otherwise inseparable end products.

"I had this idea of building a 17-foot boat with these resins," says Bigeau. "Then I'd recycle it and build a replica from the recycled materials."

Pursuing this vision, he and colleagues developed a new method for applying solvent to fibreglass endproducts, one which does away with submersion entirely. Provided they're built with recyclable resins, Bigeau and his team can recover intact sheets of fibreglass from large endproducts without chopping them up or dunking them in impractically large tubs of solvent.

Their "eureka moment" came in December 2022, and by September 2023, their new recycling method — called ReceTT — was patent-pending under the auspice of their new venture, Resolve Composites. It's around this time that Bigeau became aware of the wind industry's plight, and the potential of ReceTT to change the game. Why recycle a boat into a boat, he thought, when they could recycle a blade into a boat?

Siemens Gamesa is the second largest wind turbine manufacturer on the planet, and is leading the charge on recyclable resins in the wind industry. Recognizing the potential of ReceTT, in October 2023 they gifted Resolve Composites a 20-foot section of blade, 27 layers of fibreglass deep, held together by recyclable resin. By January 2024, Bigeau and his team had broken the blade into 162 kilograms of reuseable fibreglass sheets.

"Once I'd separated everything, it took me three hours to roll up all the fibreglass we'd gotten from it," he says.

With this fibreglass, they're constructing the hull of a Bantam Bay 17 Skiff, a project equal parts demonstration and experimentation — showing off the work of ReceTT while at the same time refining their methods. The plan, says Bigeau, is not to become professional recyclers themselves, but to instead license ReceTT to existing recyclers keen to take on fibreglass. With the growing use of recyclable resins, and the exceptional practicality of ReceTT, he hopes recycled fibreglass will, at long last, be able to complete with virgin materials on the market.

"That's what's unique about our process," says Bigeau. "It gives fibreglass recycling an edge it didn't have before."

Aside from making the wind sector more sustainable, the recycling of old fibreglass, and by extension, eliminating the need to manufacture virgin fibreglass, means avoiding carbon emissions, and lots of them. The 162 kilograms recycled by Resolve Composite represent a savings of about 194.4kg of emitted CO_2. This, said Bideau, doesn't include savings in solvent, transportation, or energy use when ReceTT is compared with traditional, submersion-based fibreglass recycling.

"Very simply, we're developing our process until it looks like something viable, economical, and sustainable — to help recyclers get better raw materials."

Next-Gen 911 Standards Require Checks and Edits

Colchester
be centred here.

The following is an overview of activities in the Community Development Department since November 2024, which was presented by Paul Smith, Director, Community Services at the Colchester Council committee meeting on April 10th.

INFORMATION / GIS SERVICES

County-wide Planning Support:

Assisting Community Development staff and Upland consultants with amendments to spatial data layers and quality control checks. Updating environmental and property zoning data layers.

Internal Spatial Data and Web Mapping:

Continuing with the development of specialized web-based reference mapping services for Community Development staff using updated systems and app framework, to replace older ones that were built with soon-to-be obsolete technology.

Current & Ongoing Projects:

Providing staff from all departments with mapping, spatial analytics, and statistics, and assisting other Community Development staff with map interpretation, file processing, and data entry tasks as needed.

Civic address administration continues as usual, along with processing NSCAF quality control checks and edits to comply with incoming Next-Gen 911 standards. Working on improving capabilities for field data collection, including site-based aerial imagery and asset mapping.

Mapping locations for Debert Business Park signage. Identification and mapping of new areas-of-interest for potential expansions to existing urban deer study project scope.

Maintenance and updates of workflows and content in our Clariti Launch online electronic building permit management system.