

## CRAB BODY PYROLYSIS: CHARACTERIZATION AND APPLICATIONS OF CRAB BIOCHAR “A CRABBY SOLUTION”

Stephanie MacQuarrie, Cape Breton University, Canada  
Stephanie\_macquarrie@cbu.ca  
Doug Richards, Cape Breton University, Canada  
Haley Armstrong, Cape Breton University, Canada  
Kelly Hawboldt, Memorial University

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Nova Scotia crab harvesters sell over 5 million lbs of Snow Crab (*Chionoecetes opilio*) annually. The commercially desired product are the legs and shoulders generating resultant waste streams from bodies of the snow crabs (approximately 1/3 of the crab). Currently this waste is landfilled which is costly and fossil fuel intensive. There is a desire to find a more environmentally sustainable practice to divert this organic animal waste from NS landfills. In a landfill, snow crab residues will decompose and generate some small amount of fixed carbon, however much of the carbon is released into the environment as CO<sub>2</sub> during decomposition and aside from some microbial benefits none of the remaining interesting chemicals are utilized during landfill decomposition. The chemical composition of the snow crab includes a high content of protein (34.2% dw) and essential amino acids; they also have fat (17.1% dw), with a high proportion of ω3 polyunsaturated fatty acids and approximately 28.5% dw minerals (calcium, phosphorous, and magnesium) making this waste stream very intriguing as a starting biomass for the generation of biochar. In this paper we have determined the optimal pyrolysis conditions and highest yield for the char generated from the crab body waste stream. The chars have been fully characterized and we have investigated several applications ranging from neutralization material for acidic waters to concrete additives and catalysis.

