

DEVELOPMENT OF SUSTAINABLE AQUACULTURE IN AN IRISH CUTAWAY PEATLAND: A NATURE-BASED APPROACH

Wagner S.S. Hernandez¹, Alan Gilmer¹, John Cassidy^{1,2}, Vivienne Byers^{1,3}

¹Environmental Sustainability & Health Institute, Dublin Institute of Technology, Ireland.

²School of Chemical and Pharmaceutical Sciences, Dublin Institute of Technology, Ireland.

³School of Management, Dublin Institute of Technology, Ireland.

Corresponding Author - Wagner Hernandez E-mail: wagner.hernandes@mydit.ie

Cutaway peatlands are a product of peat harvesting. Deciding on the most appropriate after use of these cutaway peatlands presents a special challenge and an opportunity. Various options for the after use of this land type have been considered in recent years including forestry, agriculture, horticulture, biodiversity and ecosystem services. This study proposes to explore the potential of using cutaway peatlands as a template for integrated aquaculture-biomass production based on the use of duckweed as a natural water quality controlling agent. This approach involves the novel adaptation of a split-pond system which seeks to maximise the intensive production of fish stocks whilst also optimising plant biomass. Optimising the duckweed species profile to meet designated organic production criteria will require the development of a mesocosm set-up where system components, control pathways and system values can be assessed. The outcome of this will be the development of a decision support model.

Keywords: cutaway peatlands, duckweed, biomass, water, aquaculture