


NOVA SCOTIA AQUACULTURE REVIEW BOARD

IN THE MATTER OF: Applications made by TOWN POINT CONSULTING INC. for NEW MARINE SHELLFISH LICENCES/LEASES in ANTIGONISH HARBOUR, ANTIGONISH COUNTY for the SUSPENDED CULTIVATION of AMERICAN OYSTERS (AQ#1442, #1443, and #1444)

AFFIDAVIT OF EXPERT WITNESS – ROBERT FLUTE

I, ROBERT FLUTE of Halifax, in the Province of Nova Scotia, HEREBY MAKE OATH AND SAY AS FOLLOWS:

- 1. I am a resident of Halifax, Nova Scotia.
- 2. I am employed with Material Manufacturing Solutions Ltd. as a Director of Engineering and Manufacturing. Attached to my affidavit as Exhibit “A” is a true copy of my curriculum vitae, setting out my expertise, education and training.
- 3. Attached to this affidavit as Exhibit “B” is a statement of the substance of my proposed evidence.
- 4. I make this affidavit in connection with the Applications made by Town Point Consulting Inc. for New Marine Shellfish Licences/Leases in Antigonish Harbour for the Suspended Cultivation of American Oysters and for no improper purpose.

SWORN/AFFIRMED before me at)
 Halifax, Nova Scotia)
 this 24 day of May, 2023)
)
 _____)
Sarah Shields)
 A Barrister of the Supreme Court)
 of Nova Scotia)



ROBERT FLUTE

This is **Exhibit "A"** referred to in the
Affidavit of ROBERT FLUTE sworn before
me on May 24, 2023



SARAH SHIELS

Resume: Robert Flute-Post Secondary Education & Work Experience.

Education:

1973 BA Hons. University of Lancaster, UK.

1975 MA Dalhousie University, Halifax, NS,

Work Experience.

1978-1984 IMP Group: Plastics Division.

From a start point of machine operator, held numerous supervisory and Managerial positions related to product development, materials engineering Quality Control, and production technologies. Primary industries included,
--Industrial fishing gear, primarily floats and netting twines
--Offshore oil and gas exploration
--Defence electronics
--Neonatal medical equipment.

1984-1988 --Sigma Oilfield Products (Wellingborough, England) and independent Consultant to companies providing drilling equipment to North Sea oil and gas exploration and production operations.

1989-1992 Coastal Plastics, Dartmouth, NS.
Product development and technical sales for a blown film extrusion & injection molding operations.

1992-1998 Bartlett Plastics & Machining, Debert, NS.
Vice President: Manufacturing & Business Development.
Created the first and only Atlantic Canada manufacturing company integrating CAD design & product development, Injection Mold tooling, materials engineering and part production. Scope of operations, global.

1999-2023 (Current) Material Manufacturing Solutions Ltd. (Previously Design On Polymers Inc.)
(i) Consultant to companies and start-ups focusing on new product developments and manufacturing.
(2) 2013-contracted to Engineered Assemblies Inc. (Mississauga, Ont.), specializing in the design of thermally broken ventilated rainscreen wall assemblies for buildings and supply of sustainable cladding systems featuring multiple materials.

This is **Exhibit "B"** referred to in the
Affidavit of ROBERT FLUTE sworn before
me on May 24, 2023



SARAH SHIELDS

REPORT TO NOVA SCOTIA AQUACULTURE REVIEW BOARD.

**Re.: Town Point Consulting (TPC) Application –AQ1442,
AQ1443 & AQ1444**

Submitted by,

Bob Flute: Material Manufacturing Solutions Ltd.

This report will serve as a summary only for the following thermoplastic components to be incorporated into Town Point's proposed oyster farm operations utilizing the BOBR farming and harvesting technologies. The 3 topics for discussion are:

#1. Thermoplastic material properties.

#2. Product Design and Structural Integrity.

#3. Sustainability & Environmental Considerations.

#1. Thermoplastic material properties.

The material composition of the BOBR is as follows.

(i) BOBR End Cap Closed End

(ii) BOBR End Cap Door End

(iii) BOBR End Cap Door

(iv) BOBR Float

(v) Vexar Oyster Bag

(vi) Marine Twines

Components (i), (ii) and (iii) are injection molded from high impact (No-Break) Copolymer Polypropylene (COPP) resins. Copolymers feature both homopolymer propylene and high density polyethylene (HDPE) resins. They are UV stabilized using carbon black additives. These materials are commonly used in a multitude of domestic packaging—cleaning solutions, cosmetics, foodstuffs, pharmaceutical etc. and materials handling and storage.

These materials have been in use in salt water marine and fishing operations for decades and are ideally suited to these environments.

--environmentally stable over a wide temperature range

--chemical resistance to salt water

--high abrasion resistance

--non leaching

--high impact and resistance to repeated loadings

--non-hazardous

--100% recyclable

Component (iv) is blow molded from HDPE resins that feature the same properties as (i), (ii) and (iii).

Component (v) is extruded from polypropylene resins featuring the same attributes as above.

Component (vi) is manufacturing from braided monofilament twines comprising both polypropylene and polyester materials. Together with the attributes above they are selected due to their superior abrasion resistant properties.

#2. Product Design & Structural Integrity.

Commencing early 2019, the design for items (i), (ii) and (iii) focused on the long term operational properties of the End Caps. Both End Caps provide the required rigidity for the Oyster Bag Assy. Coastal oyster farm settings are subject to harsh climatic wave and wind conditions. These components are manufactured from what the industry terms NO BREAK (NB) copolymer resins. These resins feature higher izod impact properties not typical to PP resins. In addition, their superior tensile strength provides properties required to withstand constant pressure and loads together with a degree of flexibility mitigating cracking.

The BOBR floats produced from HDPE resins are contained within the oyster bag, and are designed with wall thickness sufficient to maintain the functionality of the float in all wave and wind conditions.

The BOBR oyster bag assy. has been designed to provide multi-year functional performance free from breakage and separation, and need for continual replacement. The carbon black UV inhibitors prevent material degradation given that part of the assy. sits above the water line subject to UV rays.

#3. Sustainability & Environmental Considerations.

- The environmental stability over a wide temperature range, chemical resistance, and non-leaching properties have been cited above. Also of importance is that the abrasion resistance of all the materials in the BOBR system, and minimal chaffing prevents the ingress and potential pollution of micro plastics.
- The BOBR system is sustainable given it provides for multi-year operations without the need for continual replacements typically associated with other aquaculture operations.
- The black BOBR bags sit low in the water, and their visibility from the shoreline is minimal