

## Manitoba – Canadian Model Aqua-Farm Initiative

The Manitoba - Canadian Model Aqua-Farm Initiative comprises the development and construction of a state-of-the-art, indoor, commercial, land-based, freshwater aquaculture production system intended to establish norms and baseline standards pertaining to the biological, technological, financial and environmental sustainability of aquaculture. The venture will be heavily monitored to document the economic and environmental performance of the design, leading toward a 'turn-key' freshwater aquaculture operation that will catalyze the development of a sustainable freshwater aquaculture industry in Canada. The operation has been specifically designed to fit into conventional agriculture buildings to capitalize on the availability of latent infrastructure. The Model Farm project is a major initiative of the Inter-provincial Partnership for Sustainable Freshwater Aquaculture Development (IPSFAD), a national not-for-profit organization representing the interests of the freshwater aquaculture sector in Canada.



### ***A simple yet intensive Recirculating Aquaculture System (RAS)***

#### ***Infrastructure:***

- 200' x 60' metal-clad – p2000-insulated barn
- 3-phase hydroelectric power
- Groundwater-fed
- Standby diesel generator with automatic transfer switch
- Effluent management facilities
- Rearing area: D-ended, Burrows-type concrete raceway
- General Electric high-thrust solid-shaft vertical induction motors/ pumps
- Pendulum demand feeding system

#### ***All necessary permits and licences***

- Fish Farming Licence
- Manitoba Water Stewardship Water Rights Licence
- Licence to construct drainage or other works

#### ***Approvals***

- Environmental approval
- R.M. of Woodlands resolution



#### ***Water reconditioning system:***

##### **Solids Removal:**

- Passive – In-floor WMT\* 48" diameter sludge cones
- Active – Hydrotech drum filter – 1607-2H

##### **Biofiltration:**

- 4-Chamber moving bed with WMT\* – MB3 media

##### **CO<sub>2</sub> Stripping:**

- On-demand WMT\* – Mega-IMF CO<sub>2</sub> Stripper

##### **Oxygenation/ Ozonation:**

- Kaeser AS 25 T air compressor
- Air Sep AS-G 320 oxygen generator
- Azco RM 700 ozone generator
- Low head oxygenator (LHO)

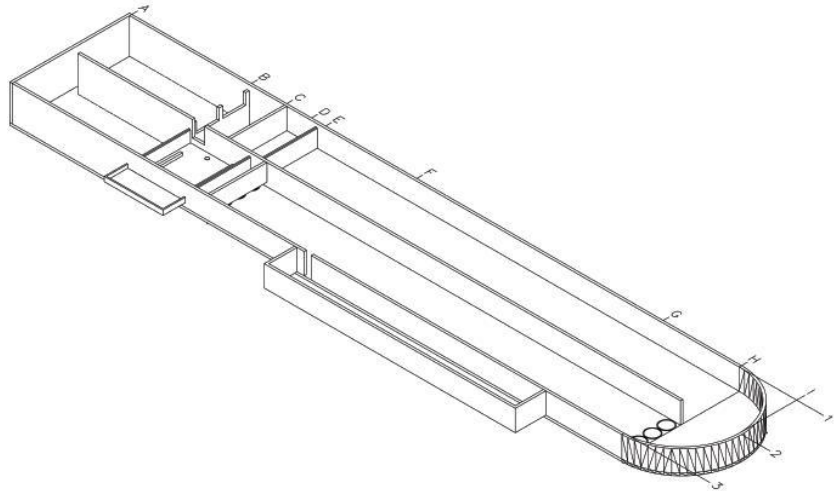
\*WMT denotes Water Management Technologies Inc.

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## Key operational parameters:

- Average rearing temperature: 10-12°C
- Rearing volume: 716 m<sup>3</sup>
- System volume: 982 m<sup>3</sup>
- Peak density: 70 kg/m<sup>3</sup>
- Maximum feed ration: 430 kg/day
- Make-up flow: 227 Lpm
- Recirculating flow: 20,500 Lpm
- Stocking plan: 30,000 20-gram fry every 3 months
- Harvest plan: 5,000 kg every two weeks @ 1200 grams

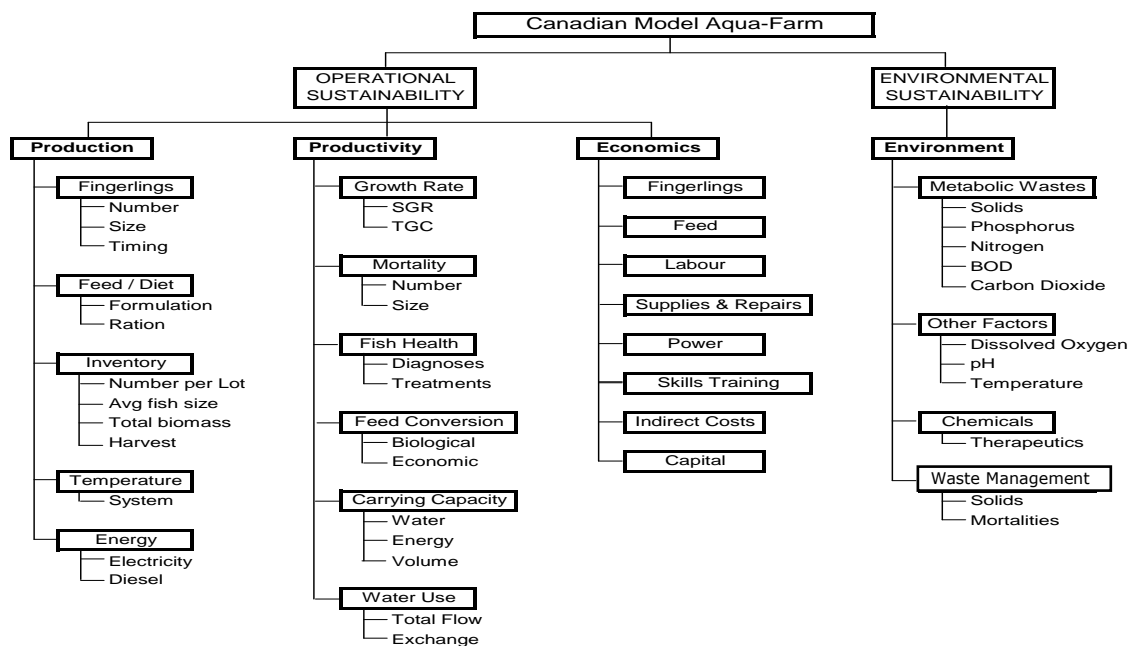


## If you don't measure it ... you can't manage it

The Performance Management Monitoring Program will generate data and information that will be used to support informed decision-making in the areas of:

- Production
- Productivity
- Economics
- Environment

Several fundamental production parameters (i.e. inputs and outputs) must be quantified to derive specific indicators related to the productivity, economics and environment components. The operational efficiency of various aspects of the biological production system will be evaluated by measuring key ratios of inputs and outputs. A fundamental objective of the model farm project is to demonstrate the financial viability of the venture. Collection of economic data pertaining to a range of inputs and outputs is essential to gauge financial performance. Environmental sustainability is another principal objective of the model farm initiative. The environmental effects of the model farm project will be determined using a variety of parameters that are pertinent to regulatory compliance within the sector. A visual summary of the Performance Management Monitoring Program:



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Support from:



Fisheries and Oceans  
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