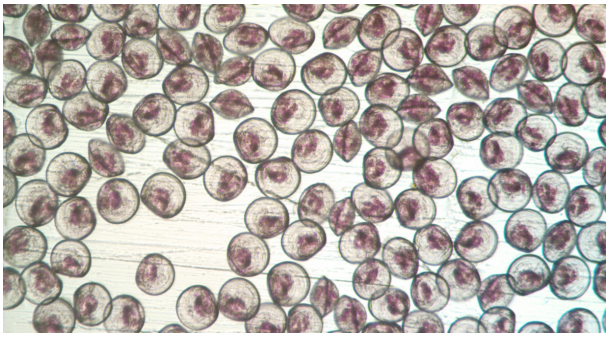
UNLOCKING EFFICIENT ALGAE PRODUCTION



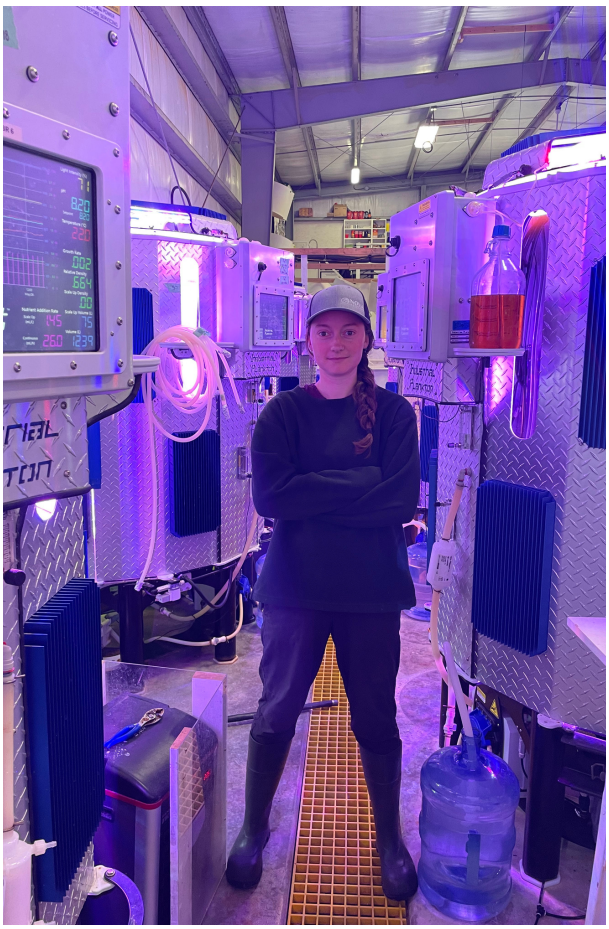
NOVA HARVEST LTD. IS A VERTICALLY INTEGRATED OYSTER HATCHERY AND FARM. IN BRITISH COLUMBIA, NOVA HARVEST PRODUCES MAJORITY OF THE HATCHERY-RAISED OYSTER SPAT.

Shellfish Farms on the West Coast of North America rely on hatchery-raised seed (newly set larvae). As oysters grow, they eat exponentially more algae, and the selection of algal production methods is critical to a hatchery's success.

Microalgae are the sole food for larval oysters, and without a reliable source of algae, the larval oysters will not survive. Algae production very directly limits the amount of shellfish a hatchery can produce.

The traditional means of algae production are labor-intensive and unreliable and take up extensive floor space. The two primary methods of traditional algae production used at Nova Harvest for Larvae production was Continuous Bags and Fiberglass Columns. Both produce algae at a fraction of the density or quality of Industrial Plankton's PBRs.

Traditional fiberglass column and algae bag system production was taking up nearly ½ of the floor space and time for staff at Nova Harvest in 2011 when Nova Harvest took a gamble on the first two Photobioreactors (PBRs) Industrial Plankton commercially built.



The new PBR technology offered the potential for higher densities, continuous algae production, and infinitely more automation than the column system. As the technology evolved (assisted by Nova Harvest's feedback), they continued to convert more and more of their production to Industrial Plankton PBRs.

This investment in high-density, low-labor algal production method freed up staff and space to devote elsewhere in the production chain.

See Tables below for metrics used in calculations.

Case Study - Nova Harvest LTD

Table 1. Handling time comparison for microalgae systems for shellfish seed production. Data collected during hatchery operations at Nova Harvest.

	Fibergalss Columns	1st prototype PBRs	PBR 1250L
Average Quality of Microalgae	Medium	Medium /High	High
Handling culture prep time (Hours)	6.5	9.5	11.5
Handling time per day (Hours)	2.5	0.75	0.25
Days of Harvest (Days)	1.5	14	30
Harvest (L/day)	200	250	340
Average Density (Million cells/ml)	5	7	14
Trillion Cells of Algae per Handling Hours	0.1	1.0	7

The Industrial Plankton Photobioreactor (PBR-1250) is 70X more efficient in handling time than the fiberglass column system and 7X more efficient than the original Industrial Plankton prototype PBRs while producing the highest quality of any system used.

Case Study - Nova Harvest LTD

Table 2. Algae culture system comparison, highlighting the increased energy efficiency of the PBR 1250L model.

Model	Total Volume (L)	Average Harvest Density (Millions Cells/ml)	Total Algae Cells (Trillion Cells/Day)	kW/Day	SqFt.	Watts per Trillion Cells	Daily Yield (Billion Cells/SqFt.)
PBR 1250L (X3)	3600	14	14.3	179.2	90	12.6	158.2
1st prototype PBRs (X2)	1600	7	1.4	48	38	34.2	43.8
Columns (X6)	2400	5	2	144	50	72	40

Algae production is critical to any oyster hatchery, and Nova Harvest is glad to have chosen an efficient and scalable algal production system. Between the decreased labour (handling time), increased density of production (saving floor space), and better energy efficiency of the PBR 1250L, it makes investing in Industrial Plankton's PBRs a clear choice as they continue to grow and expand their oyster production operation to fill their farm and many other farms in British Columbia with oysters.