

Forget everything you think you
already know about farm-raised fish.

SUSTAINABLE BLUE 

Presentation – ICRA 2016



TOPICS ;

- **About Sustainable Blue**
- **Present operations and current expansion**
- **Future expansion plans**
- **Growth and maturation**
- **Geosmin**



ABOUT SUSTAINABLE BLUE

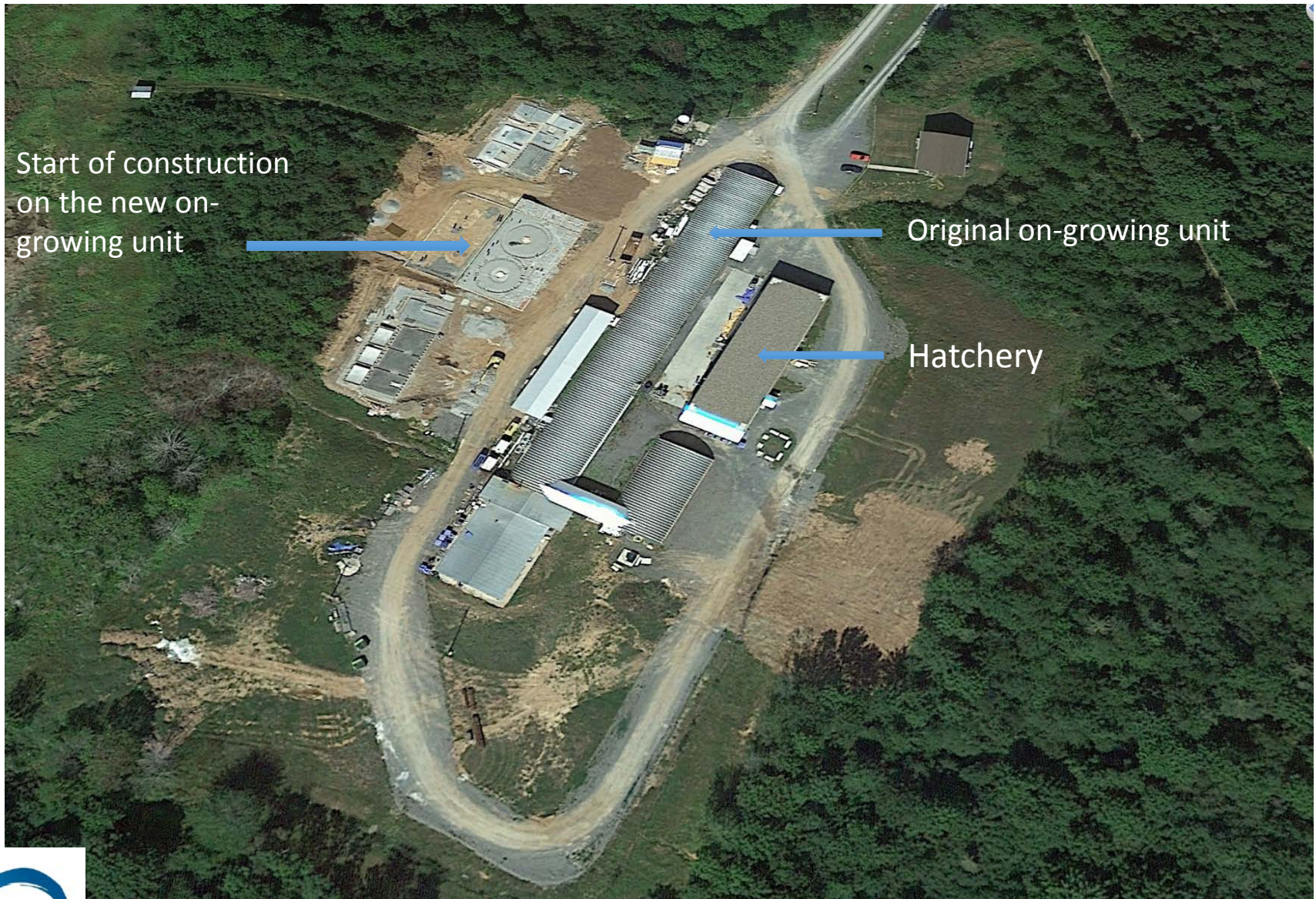
SUSTAINABLE BLUE 

ABOUT SUSTAINABLE BLUE

- Commercial RAS aquaculture facility located in Hants County, Nova Scotia, Canada.
- Proprietary technology platform – TCAS
- Unique scientific principles
- Proof of concept unit completed in 2010
- Hatchery completed in 2013
- Expansion “modular” on-growing unit – expected completion September 2016
- First eggs stocked January 2014
- First smolts produced in November 2014
- First salmon sales in September 2015



PRESENT OPERATIONS AND CURRENT EXPANSION



PRESENT OPERATIONS AND CURRENT EXPANSION			
	EXISTING	CURRENT EXPANSION	
	ON-GROWING (100MT)	ON-GROWING (85MT)	TOTAL
Biological metrics			
- Smolts per annum	31,250	26,500	57,750
- Harvest biomass produced (Kgs)	100,000	85,000	185,000
- Standing biomass (Kgs)	37,500	31,875	
- Filtration capacity (Kgs feed per day)	329	279	608
System Metrics			
- Tank Volume (m3)	500	500	1,000
- Treatment System Volume (m3)	500	400	900
- Total Volume (m3)	1,000	900	1,900
- Flow Rate (m3 / Hr)	1,000	1,000	
HATCHERY CAPACITY			
- Annual Smolt Production (numbers)			250,000
- Annual On-growing annual Biomass (Kgs)			750,000

PURPOSE OF BUILDING THE NEW ON-GROWING MODULE

- Establish positive cash flow
- Prove the construction techniques and partners on the new “modular” design
- Construct a working module to showcase the new technology platform



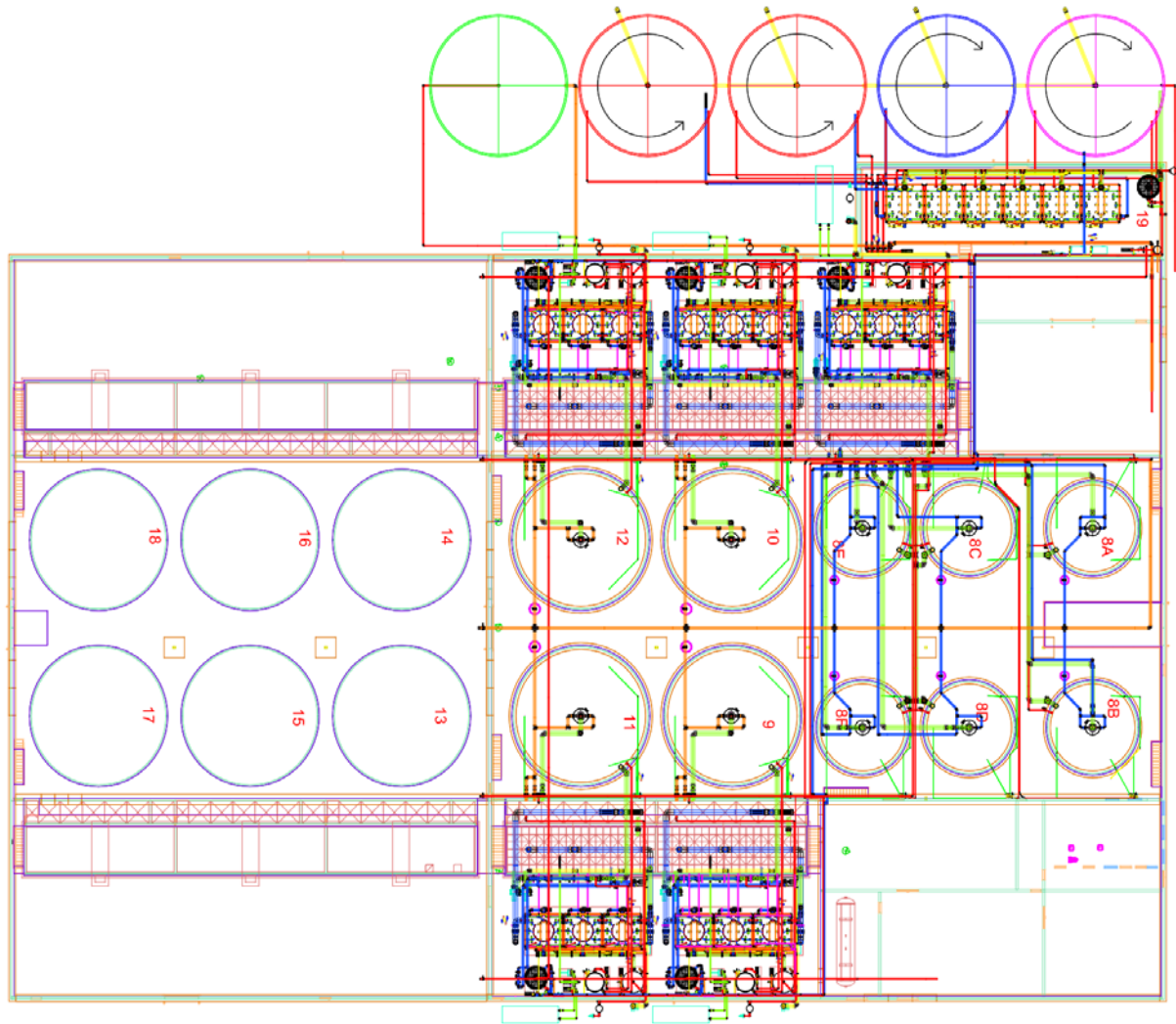
FUTURE EXPANSION PLANS

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FUTURE EXPANSION



300 MT Module – Floor Layout



PRESENT OPERATIONS AND CURRENT EXPANSION				
	EXISTING	CURRENT EXPANSION	FUTURE EXPANSION	
Biological metrics	ON-GROWING (100MT)	ON-GROWING (85MT)	ON-GROWING (300MT)	TOTAL
- Smolts per annum	31,250	26,500	93,750	151,500
- Harvest biomass produced (Kgs)	100,000	85,000	300,000	485,000
- Standing biomass (Kgs)	37,500	31,875	112,500	181,875
- Filtration capacity (Kgs feed per day)	329	279	986	1,595
System Metrics				
- Tank Volume (m3)	500	500	1,765	2,765
- Treatment System Volume (m3)	500	400	1,412	2,312
- Total Volume (m3)	1,000	900	3,176	5,076
- Flow Rate (m3 / Hr)	1,000	1,000	1,000	
HATCHERY CAPACITY				
- Annual Smolt Production (numbers)				250,000
- Annual On-growing annual Biomass (Kgs)				750,000

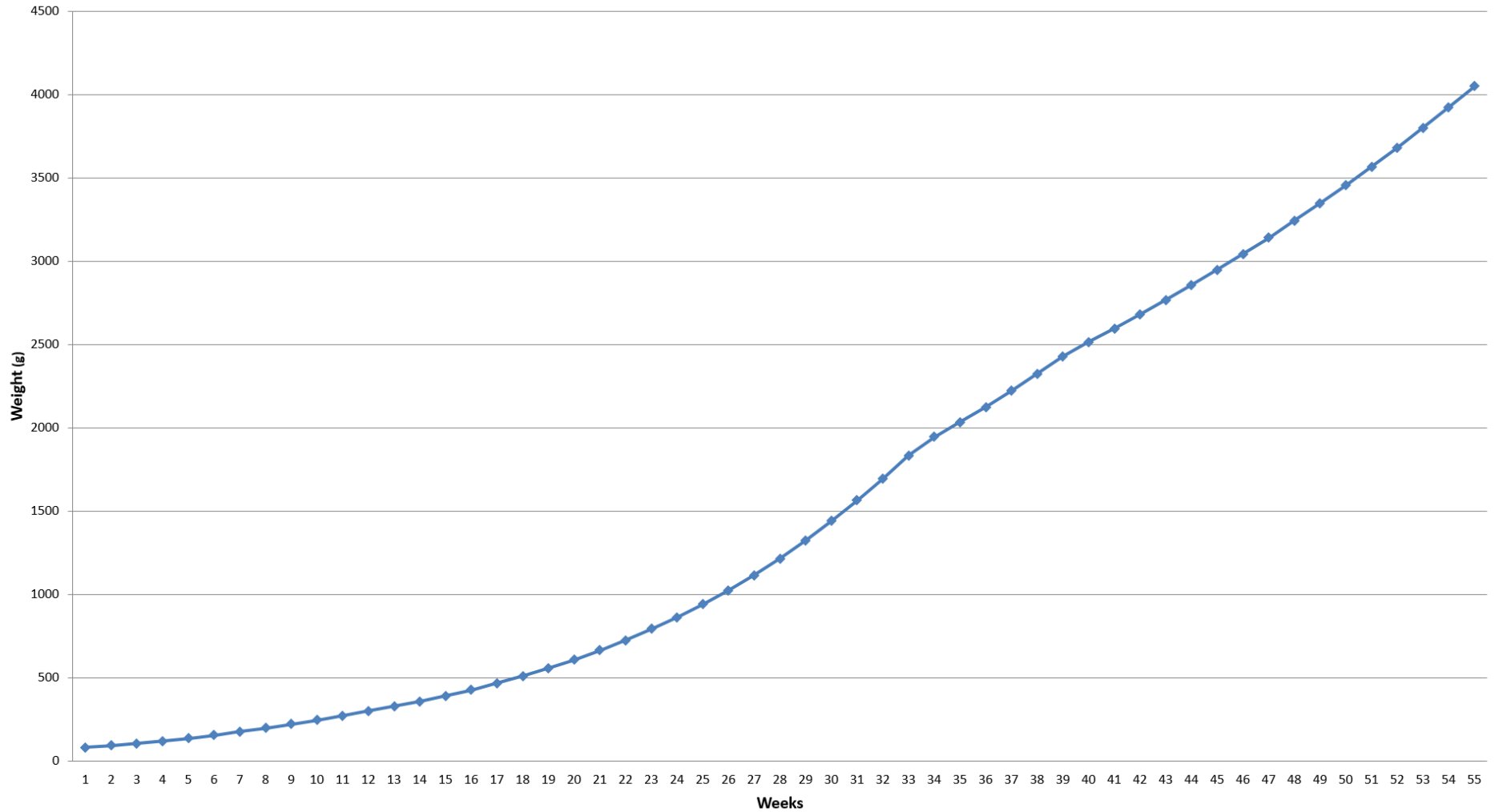


GROWTH AND MATURATION

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GROWTH AND MATURATION

Salmon Growth Chart
Weight at Start of period



GROWTH AND MATURATION		
	Design Biological	Current Biological
	Variables	Variables
Intake smolt size (gms)	80	250 - 500
Standing biomass (Kgs)	37,500	49,975
Ave Stocking Density (Kgs / m3)	50 - 70	100
Max Stocking Density (Kgs / m3)	100	152
In Tank Co2 (ppm)	< 10	15 - 22

MATURATION

- Initial batches in the range of 8 – 12% maturation
- Subsequent batches with larger smolt sizes in the range of 30 – 40% maturation

MITIGATION STRATEGY ON MATURATION

- Revised temperature regime in the freshwater lifecycle stages
- Revised photoperiod in the freshwater lifecycle stages
- Revised photoperiod in the saltwater on-growing system

OBSERVATIONS

- Significantly reduced rates of Precocious Parr in the Hatchery
- Month to month increase in grilse %age in saltwater on-growing tanks has ceased
- Some reversing of the maturation process when performing sample weights
- Note - Long term mitigation strategy involves the use of all female eggs



GEOSMIN CHALLENGE

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SUMMARY

- **The Sustainable Blue filtration technology has given very consistent performance, even at extremely high stocking densities.**
- **Growth and maturation metrics have been observed at levels which support the Sustainable Blue business model.**
- **Husbandry issues associated with construction delays have caused growth and maturation issues.**