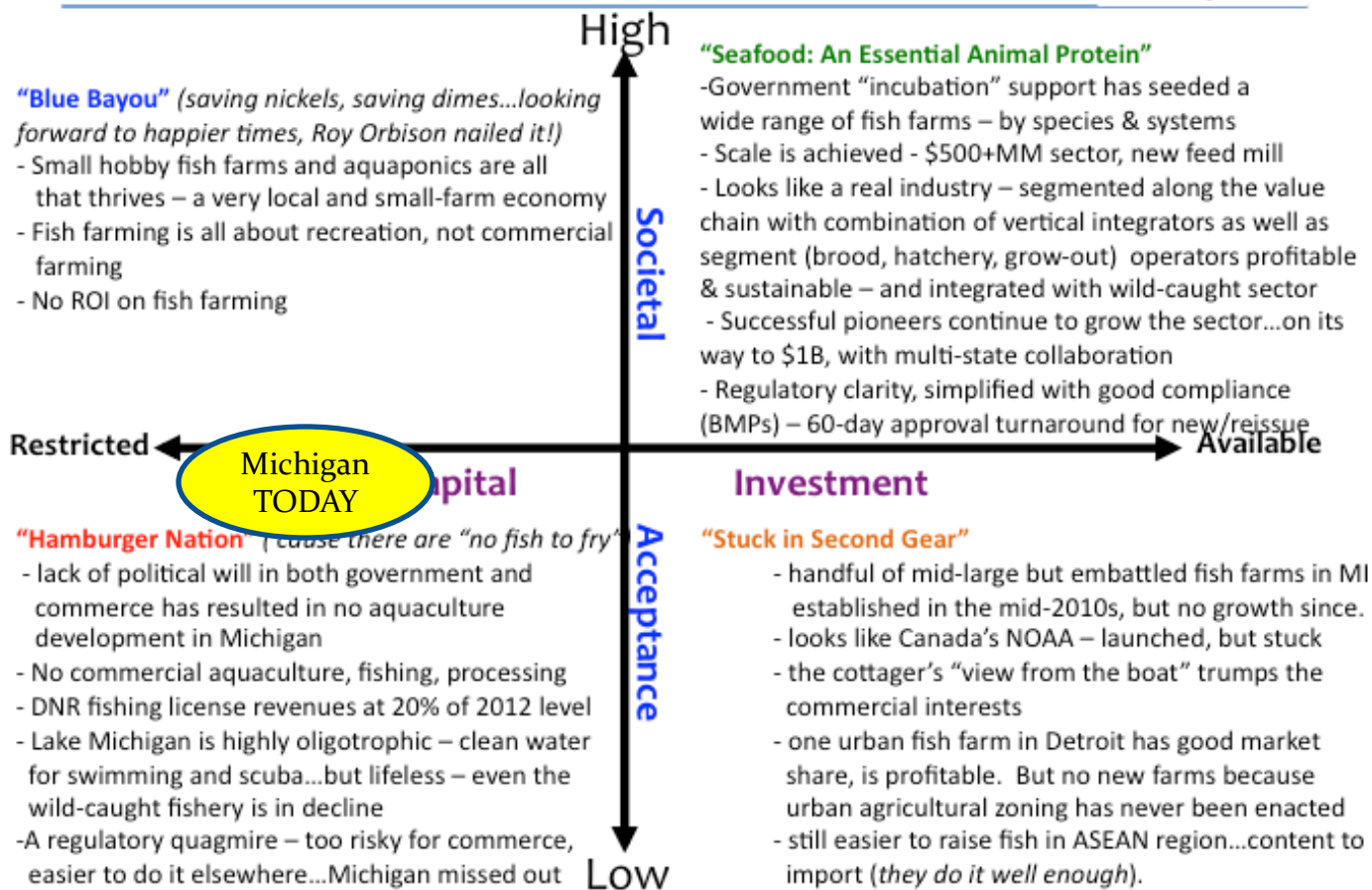
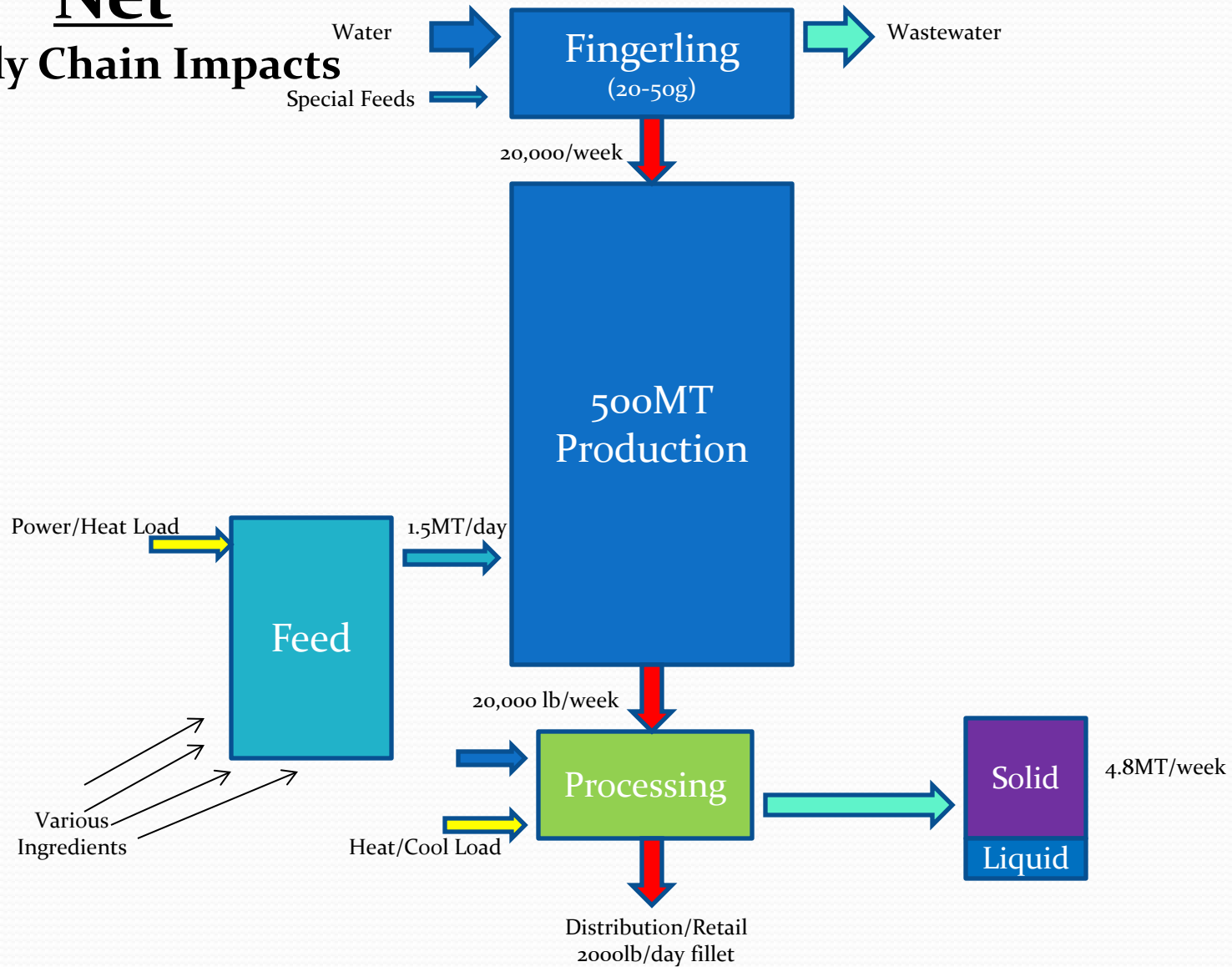




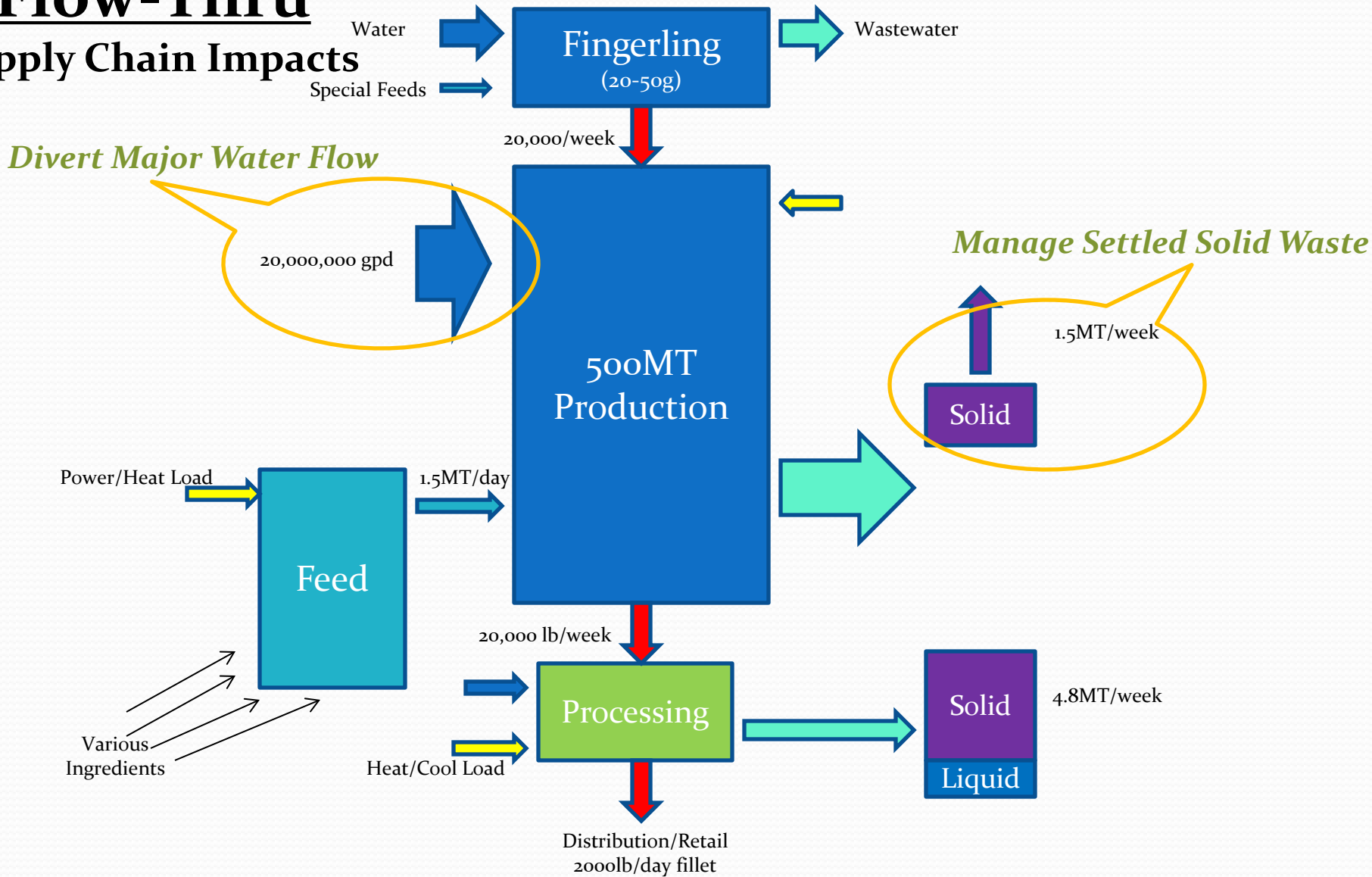
Michigan Aquaculture Scenarios, 2025 (developed Nov '12, edited Dec '13)



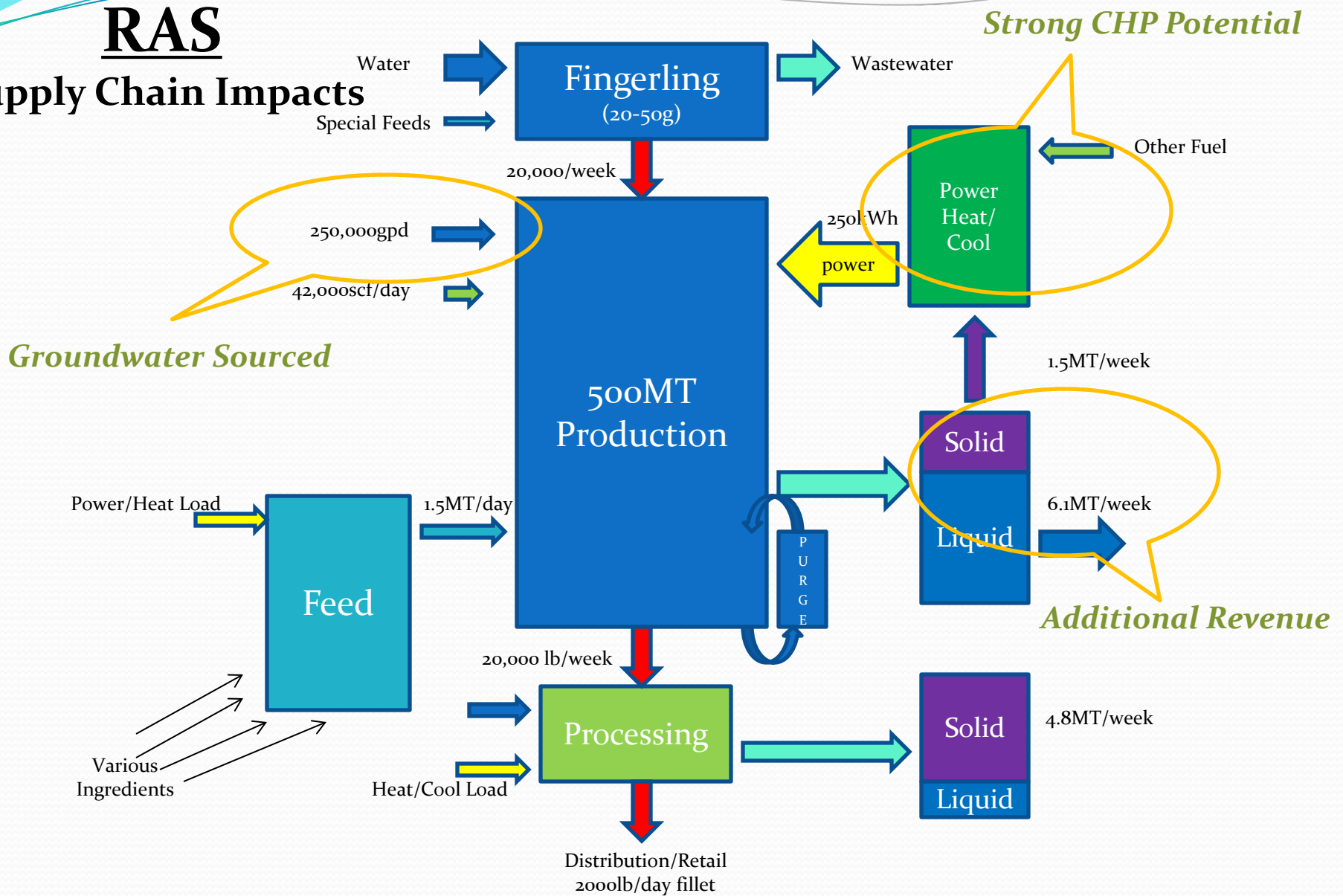
Net Supply Chain Impacts



Flow-Thru Supply Chain Impacts



RAS Supply Chain Impacts



Supply Chain Scale Comparison

		MI 2013	Model Size	Model Supply
Production	MT/yr	66	500	2500
	Revenue \$/yr	709,000	3,031,357	15,156,783
	Employment FTE	50	4	8
Fingerling	fing/week	2,788	20,000	100,000
		<i>MDNR</i> 400k-800k		
Feed	MT/day	0.2	1.5	7.5
		<i>MDNR</i> 1MT-2MT		
Processing	lb/week	2,594	20,000	100,000
Energy	kWh	35	250	1,000
Solid Waste	MT/day	0.1	0.8	4



RAS Overview

Size (MT/yr)	Capex (\$m)	COGS (\$/kg)	Remarks	Locations
<50MT	<\$1m	n/a	Research and Demonstration size	Several: FWI, Chile, Norway, BC
100MT	\$2m	\$6.00	Premium niche, adaptable market/sales strategies	TasteBC, SweetSpring, current majority of smolt and Broodstock hold(Norway/Chile)
400MT	\$5m-\$7m	\$7.00	Not viable for full size production, smolt operationally challenging, but viable	New smolt facilities, Namgis
1000MT	\$7m-\$10m	\$4.90	Largest currently attempted	Denmark, China, Bell
3000MT	\$30m	\$4.00	Competitive to cage cost, but need premium to see ROC	None

*All comparisons assume Atlantic Salmon, MT/year, at HOG value weight and price; \$1US=\$1CAN=6NOK
Market Prices assume \$4.50-\$6.50 normal, \$8-\$9 for premium local (2013 Various Sources)*