Supplementary table 1. The table summarises the literature reviewed in order to design the synthetic aquaculture wastewater.

Source	Location	Fish species	Fish density	TP ($mg \cdot l^{-1}$)	P (phosphate, $mg \cdot l^{-1}$)	TN ($mg \cdot l^{-1}$)	N-Nitrate ($mg \cdot l^{-1}$)	N-Nitrite ($mg \cdot l^{-1}$)	N-ammonia ($mg \cdot l^{-1}$)	pH
1	Canada	Rainbow trout		8.7		50.2				
2	Germany	Raimbow trout	high	range: 0.42-0.49		range: 7.5-9.9	range: 3.2-4.6	range: 0.022-0.091	range: 1.1-2.6	
	Norway	Salmonid smolt	high	range: 0.05-0.3		range: 0.5-2				
3	Canada	Rainbow trout		7.15		41				
4	Canada	Brown trouta		6.2		49.2				
4	Canada	Lake trouta		6.8		65.3				
5	Several European countries	Artic char	range: 85-130 (kg/m^3)				<10	<0.5		range: 6.5-8.5
		Atlantic salmon smolt	range: 45-50 (kg/m^3)				≤90	<0.2		range: 6.8-7.3
		European eel	range: 50-120 (kg/m^3)				range: 50-10	range: 0-1.5		range: 5-7.5
		European lobster								range: 7.8-8.2
		Pike perch	range: 15-60 (kg/m^3)				≤56	range: 0-1.5		range: 6.5-7.5
		Rainbow trout	range: 50-80 (kg/m^3)				<200	<1		range: 6.5-8
		Sturgeon	range: 80-100 (kg/m^3)				<25	<0.5		range: 7-8
		Tilapia	range: 85-120 (kg/m^3)				range: 100-200	range: 0.05-1		range: 6.5-8.5
6	Canada	Rainbow trout			0.06		2.2		0.5	
7	Israel	Tilapia	20 kg/m^3	10					range: 10-23	range: 6.5-6.7
8	Canada				2.69		0.39		1.39	
9		synthetic aquaculture wastewater			19		20		20	
10	Ireland	Rainbow trout and perch	20		2.5		10.5		3.5	
11	Denmark	Rainbow trout		15		71				
12	USA (Alabama)	Catfish		0.56			2.36		2.35	
13	USA (Florida)	Catfish fingerlings	0.81 ($fish/m^3$)	0.395±0.035 (SE) (range: 0.168-0.809)		2.5±0.74 (SE) (range: 0.4-14.3)	0.058±0.007 (SE) (range: 0-0.13)	0.002±0.001 (SE)(range: 0-0.01)	0.439±0.107 (SE) (range: 0.05-1.8)	8.3±0.14 (SE) (range:7.4-9.1)
	USA (Florida)	Catfish fingerlings	1.09 ($fish/m^3$)							
	USA (Florida)	Catfish fingerlings	0.83 ($fish/m^3$)							
	USA (Florida)	Catfish fingerlings	0.89 ($fish/m^3$)	0.33±0.039 (SE)(range: 0.17-0.454)		2.8±1.63 (SE)(range: 0.05-10.8)	0.048±0.015 (SE)(range: 0.01-0.1)	0.002±0.001 (SE)(range: 0-0.005)	0.33±0.083 (SE)(range: 0.05-0.64)	8.9±0.26 (SE)(range: 7.9-9.6)
	USA (Florida)	Catfish fingerlings	2.15 ($fish/m^3$)	0.354±0.034 (SE) (range: 0.129-0.526)		1.5±0.31 (SE)(range: 0.3-3.7)	0.061±0.006 (SE)(range: 0.04-0.1)	0.003±0.001 (SE)(range: 0-0.01)	0.505±0.155 (SE)(range: 0.06-1.5)	8.5±0.19 (SE)(range: 7.4-9.3)
	USA (Florida)	Catfish fingerlings	1.37 ($fish/m^3$)							
	UK	Catfish fingerlings	1.34 ($fish/m^3$)	0.198±0.009 (SE) (range: 0.148-0.238)		2.6±0.36 (SE) (range: 0.8-4.9)	0.114±0.025 (SE) (range: 0.030-0.28)	0.03±0.001 (SE) 0-0.007	0.177±0.032 (SE)(range: 0.05-0.35)	8.3±0.21 (SE)(range: 7.4-9.3)
	UK	Catfish fingerlings	0.83 ($fish/m^3$)							
	USA (Florida)	Catfish fry	41.66 ($fish/m^3$)	0.244±0.063 (SE)(range: 0.08-0.841)		1.4±0.14 (SE)(range: 0.7-12.4)	0.113±0.026 (SE)(range: 0.01-0.31)	0.008±0.004 (SE)(range: 0-0.048)	0.218±0.04 (SE)(range: 0.05-0.47)	8±0.16 (SE)(range: 7.3-9)
	USA (Florida)	Catfish fry	41.66 ($fish/m^3$)							
	USA (Florida)	Buegill, reader sunfish, grass carp fry	8.47 ($fish/m^3$)	0.104±0.009 (SE)(range: 0.069-0.151)		1.4±0.13 (SE)(range: 0.8-2.2)	0.088±0.014 (SE)(range: 0.05-0.17)	0.006±0.002 (SE)(range: 0-0.017)	0.128±0.025 (SE)(range: 0.05-0.28)	8±0.18 (SE)(range: 6.9-9.6)
	USA (Florida)	Buegill, reader sunfish, grass carp fry	8.47 ($fish/m^3$)							
	USA (Florida)	Lasrgemouth bass, bluegill, reader sunfish fry	22 ($fish/m^3$)	0.022±0.002 (SE)(range: 0.01-0.39)		0.8±0.06 (SE)(range: 0.5-1.1)	0.084±0.011 (SE)(range: 0.05-0.15)	0.003±0.001 (SE)(range: 0-0.005)	0.232±0.052 (SE)(range: 0.05-0.5)	9±0.21 (SE)(range: 7.8-9.9)
	USA (Florida)	Lasrgemouth bass, bluegill, grass carp fry	21.5 ($fish/m^3$)							
14		Rainbow trout		0.49			60		10.6	
15	USA (Wisconsin)	Perch		range: 0.01-0.4		0.5			range: 0.02-1.5	
	USA (Wisconsin)	Perch				0.5				
	USA (Minnesota)	Perch				0.3				
	USA (Minnesota)	Perch				0.35				
	USA (Iowa)	Catfish				1				
	USA (Iowa)	Catfish				1				
	USA (Iowa)	Catfish				7				
	USA (Iowa)	Catfish				1.1				
	USA (Iowa)	Catfish				1				
	USA (Wisconsin)	Perch				0.7				
	USA (Wisconsin)	Perch				0.8				
	USA (Wisconsin)	Perch				1				
16	Brazil								20	

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