

**CHEMICAL COMPOSITION OF CULTURE WATER AT FLORIDA CLAM SEED PRODUCTION FACILITIES (n=12) DURING 2020-2022¹
IN COMPARISON WITH SALTWATER COMPOSITION³**

Parameter Measured (Symbol)	Definition	Unit	Midwest Lab Report Limit ^{1,2}	Saltwater (35 ppt) Composition ³	Year 1 (2020-21)			Year 2 (2021-22)		
					Average	Min	Max	Average	Min	Max
Antimony (Sb)	Metalloids	mg/L	0.0005	0.00033	0.0009	< 0.0005	0.0019	<0.0005	<0.0005	<0.01
Arsenic (As)	Heavy Metal	mg/L	0.0005	0.0026	0.0381	0.0231	0.0486	0.0302	0.0173	0.061
Barium (Ba)	Heavy Metal	mg/L	0.005	0.021	0.014	0.006	0.039	0.018	0.009	0.044
Beryllium (Be)	Alkaline earth metals	mg/L	0.0005	6E-07	0.0067	0.0025	0.0109	0.0038	0.0007	0.009
Bicarbonate (CaCO ₃)	Non-metal	ppm	10	145	137	117	200	147	114	248
Boron (B)	Metalloids	ppm	0.05	4.45	3.25	2.81	3.87	3.42	2.82	4.36
Cadmium (Cd)	Heavy Metal	mg/L	0.002	0.00011	0.007	0.003	0.011	0.003	0.002	0.003
Calcium (Ca)	Alkaline earth metals	ppm	0.10	411	316	269	410	285	250	326
Carbonate (CaCO ₃)	Non-metal	ppm	0.5	-	1.1	0.5	1.8	1.5	0.6	3.1
Chloride (Cl)	Minerals, salts, mineral salts	ppm	500	19,400	16255	12400	19300	16600	14500	18400
Chromium (Cr)	Heavy Metal	mg/L	0.01	0.0002	< 0.01	< 0.01	< 0.01	<0.01	<0.01	0.01
Copper (Cu)	Heavy Metal	mg/L	0.01	0.0009	0.01	< 0.01	0.01	0.02	0.01	0.02
Fluoride (F)	Minerals, salts, mineral salts	mg/L	0.10	1	3	< 0.1	<5	<10	< 0.1	<10
Iron (Fe)	Heavy Metal	ppm	0.05	0.0034	1.08	< 0.05	2.14	0.65	<0.05	1.37
Lead (Pb)	Heavy Metal	mg/L	0.0005	0.00003	0.001	< 0.0005	0.0011	0.0009	<0.0005	9E-04
Magnesium (Mg)	Alkaline earth metals	ppm	0.10	1290	925	734	1120	869	790	967
Manganese (Mn)	Heavy Metal	ppm	0.005	0.0004	0.04	< 0.005	0.08	0.03	<0.005	0.048
Mercury (Hg)	Heavy Metal	mg/L	0.0004	0.00015	0.0004	< 0.0004	0.0004	<0.0004	<0.0004	<0.0004
Nickel (Ni)	Heavy Metal	mg/L	0.01	0.0066	0.03	< 0.01	0.03	0.01	< 0.01	0.01
Phosphorus (P)	Non-metal	ppm	0.05	0.088	0.28	< 0.05	0.64	0.24	0.09	0.68
Potassium (K)	Alkali metals	ppm	0.50	392	278	230	324	298	266	343
Selenium (Se)	Non-metal	mg/L	0.001	0.0009	0.040	0.009	0.098	0.029	0.018	0.048
Sodium (Na)	Alkali metals	mg/L	0.10	10,800	8145	6430	9760	8730	7520	9860
Sodium absorption ratio (SAR)	Alkali metals	None	0.1	-	51.8	45.5	59.4	57.6	52.2	62.4
Sulfate (SO ₄ ²⁻)	Minerals, salts, mineral salts	mg/L	100	2701	2241	1740	2630	2347	2030	2620
Thallium (Tl)	Heavy Metal	mg/L	0.0005	-	< 0.0005	< 0.0005	< 0.0005	<0.0005	<0.0005	<0.01
Total dissolved solids (TDS)	Water Chemistry	mg/L	10	-	28418	21500	33300	29820	25500	33500
Zinc (Zn)	Heavy Metal	ppm	0.01	0.005	0.02	0.01	0.04	0.02	0.01	0.02

¹ Culture waters were analyzed by Midwest Laboratories, Omaha, Nebraska, <https://midwestlabs.com/>.

² The smallest amount or lowest concentration of a parameter that Midwest Laboratories can determine following established EPA analytical procedures. Note mg/L=ppm.

³ Source: Turekian, K.K. (1968). Oceans (Foundations of Earth Science Series). Prentice-Hall, New York. <http://www.seafriends.org.nz/oceano/seawater.htm#composition>