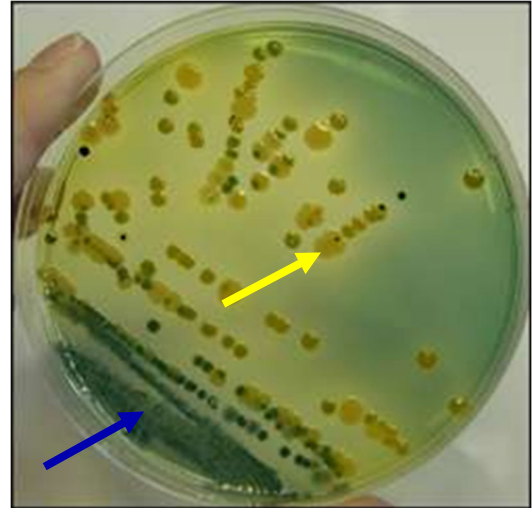


Interpretation of Vibrio Counts in Bivalve Hatcheries

Revised and updated by Dr. Susan Laramore on March 2015
Florida Clam Industry Workshop, Cedar Key, FL

Thiosulfate Citrate Bile Salts (TCBS) is a blue-green bacterial media used to identify Vibrio bacteria. Different Vibrio species appear as either yellow or green colonies due to a change in pH that occurs depending on whether they utilize the sucrose (yellow) or not (blue-green).

Pathogenic Vibrios (for example, *V. vulnificus*, *V. parahaemolyticus*) are blue-green (blue arrow), while non-pathogenic Vibrio's (for example, *V. alginolyticus*, *V. anguillarum*) are yellow (yellow arrow). Each colony counted is referred to as a colony forming unit (CFU).



One of the goals of this Florida Sea Grant project is to determine typical ranges of Vibrio in various bivalve hatchery locations that are seen without affecting bivalve health, as well as to determine an upper limit that might be associated with larval or post-set clam mortality.

There is rarely an acceptable number of pathogenic bacteria in bivalve hatcheries; however, some Vibrio is expected and is typical in all marine aquaculture operations. The table below outlines reported ranges (lower and upper limits) for a typical operation. These numbers are simply guidelines; the goal should be complete elimination of pathogenic colonies and low numbers of non-pathogenic colonies.

Lower and Upper Limits of Vibrio Bacteria typically found in a Shellfish Hatchery

Hatchery Location	Total Vibrios (CFU/ml)	Non-pathogenic Vibrios (yellow) (CFU/ml)	Pathogenic Vibrios (green) (CFU/ml)
Algae Cultures	< 10	< 10	0
Incoming water	< 10	< 10	0
Tank Culture Water*	1000 to 11,000	1000 to 10,000	10 to 1000
Larvae / Post-set	10-100?	10 – 100?	0

* Higher #'s expected for Broodstock > Post-set > Larvae Tank