



Date: October 22, 2013  
From: Sterling Caviar LLC  
To: Regional Water Quality Control Board  
Central Valley Region  
Att: Gayleen Perria  
1020 Sun Center Dr. Suite 200  
Rancho Cordova CA 95670

Re: Request to obtain Status as a Designated Party: re Proposed Waste Water Discharge Requirements of the City of Jackson NPDES Permit # CA0079391 and Written Comments on The Tentative NPDES Permit, Order amending Time Schedule Order R5-2011-0909, Jackson Wastewater Treatment Plant, Amador County

Sterling Caviar requests that we be granted status as a Designated Party for the purposes of the scheduled hearing on the City of Jackson's amended Report of Waste Discharge and related matters on December 5/6, 2013.

Sterling Caviar LLC owns and operates a sturgeon fish farm leasing land and purchasing water from the Jackson Valley Irrigation District (JVID), purchasing water directly from Lake Amador at our Buena Vista farm (BV). We have been utilizing this water for many years now, and would like to comment on the proposed change in operational discharge from the City of Jackson's Wastewater Treatment Plant. While we would prefer to have 0% of Lake Amador's capacity as a limit for the wastewater discharged from the treatment plant, we have learned to live with the 5% current limit, but feel there may be un-intended consequences from allowing this number to be increased. We produce premium quality caviar that has become known around the world for its quality and sustainability. We sell our caviar in the US, EU, Australia, Japan, China and Russia currently and are expanding into new opportunities in different countries as they present themselves. As such, the quality of the water in which we raise and condition the females for caviar production at BV is of utmost importance to us in order to maintain our reputation that the Sterling Brand caviar has developed internationally. We have read thru the tentative order and do not find the following issues of concern and potential consequences to us addressed and we feel these issues need addressing before any change in water quality limits is made.

1. Lake Amador is a Eutrophic Lake, obtaining nutrients from run off which lead to the development of algae blooms (phytoplankton) in the lake of various intensities. As the bloom dies, they settle on the bottom especially during the summer months during high light and high photosynthesis periods, which increases the organic load on the lake's bottom as the phytoplankton dies off in its natural cycle. Then during Fall periods, Lake Amador turns over, which is when the warmer water near the surface cools quicker than the cooler bottom water, and the water flip flops, thus water at the top migrates quickly to the bottom of the lake and vice versa. As this occurs, the bottom of the lake gets stirred up and we get releases of mainly Hydrogen Sulfide into the water system which pulls mainly off near the bottom of the lake. This period causes extreme distress and mortality on our fish in our fish farm. Our fear is that if increased amounts of treated sewage, especially containing nitrates or phosphates are allowed as a percentage of Lake Amador's volume, that this will increase the Eutrophication of Lake Amador creating an ever increasing likelihood of problems for all the fish farms that pull water from the lake during fall lake turnover. An additional side effect of increased Eutrophication is for the fish population in the lake itself. As pointed out below, an additional consequence of increased phytoplankton population or blooms, is that they have the ability to pull oxygen out of the water, thus leading to mortality in the fish population in the lake itself, specifically the trout which are more susceptible to low dissolved oxygen levels than warm water fish. With Lake Amador being a highly prized trout fishing lake, anything that disrupts the trout population in the lake could be considered a detrimental consequence. I provide the Wikipedia definition of Eutrophication below for your convenience.

**Eutrophication** ([Greek](#): *eutrophia*—healthy, adequate nutrition, development; [German](#): *Eutrophie*) or more precisely **hypertrophication**, is the ecosystem response to the addition of artificial or natural substances, such as [nitrates](#) and [phosphates](#), through [fertilizers](#) or [sewage](#), to an aquatic system.<sup>[1]</sup> One example is the "bloom" or great increase of [phytoplankton](#) in a water body as a response to increased levels of nutrients. Negative environmental effects include [hypoxia](#), the depletion of oxygen in the water, which induces reductions in specific fish and other animal populations.

2. Sterling Caviar produces primarily caviar as the main product from fish kept at our facility utilizing Lake Amador water, with the meat being a secondary product. The gonads of fish tend to be a bio-accumulator of heavy metals and other pollutants. This is becoming an ever increasing issue for us, as we are beginning to have to provide this type of information to our distributors who sell our caviar in the EU right now. We are being asked to provide...."a production diagram and analysis of contaminants on caviar (dioxin, pesticides, heavy metals...)"'. Our concern is that any increase in the percentage of water that Jackson Wastewater Treatment plant can discharge into Lake Amador, if it contains any level of heavy metals or pesticides, that this would bio-accumulate in our females destined for caviar production and restrict our ability to meet EU food safety limits on our caviar. This would be a serious concern, given that almost half our sales yearly are thru the EU right now and likely to increase over time.
3. An additional concern for us related to #1 above, with an increase in Eutrophication of Lake Amador, any increase in the phytoplankton blooms, especially the blue-green algae, as these cyanobacteria produce a compound known as Geosmin. This is a big issue in farm raised fish like catfish that are raised in ponds, where these blue-green blooms can develop. We know that we have had some problems with Geosmin taste, an earthy muddy taste in our caviar from fish raised at our Lake Amador site. Any increase in nutrients into Lake Amador from the Jackson Wastewater Plant could further disrupt the ecosystem and increase the likelihood of undesirable blooms which would have catastrophic consequences on our ability to sell our caviar as a premium product. Additionally, any fish caught out of Lake Amador would also have an increase likelihood of being tainted with Geosmin, which would impact recreational fishing opportunities on the lake for the highly prized trout found in the lake. For your convenience, I copied some descriptions of this phenomenon out of Wikipedia for you.

**Cyanobacteria** /[sai,ænoʊbæk'tɪəriə](#)/, also known as **blue-green bacteria**, **blue-green algae**, and **Cyanophyta**, is a [phylum](#) of [bacteria](#) that obtain their energy through [photosynthesis](#).<sup>[4]</sup> The name "cyanobacteria" comes from the color of the bacteria ([Greek](#): κυανός (kyanós) = blue).

**Geosmin** is responsible for the earthy taste of [beets](#) and a contributor to the strong scent that occurs in the air when rain falls after a dry spell of weather ([petrichor](#)) or when soil is disturbed.<sup>[5]</sup> The [human nose](#) is extremely sensitive to geosmin and is able to detect it at concentrations as low as 5 parts per trillion.<sup>[6]</sup>

Geosmin is responsible for the muddy smell in bottom-dwelling freshwater fish such as [carp](#) and [catfish](#). Cyanobacteria produce geosmin and [2-methylisoborneol](#), which concentrate in the skin and dark muscle tissue. Geosmin breaks down in acid conditions; hence vinegar and other acidic ingredients in fish recipes help reduce the muddy flavor.

Thus until these issues are addressed by the Jackson Wastewater Treatment Plants proposal to liberalize their dilution effect on Lake Amador water, and it's affect on us as well as other fish farms utilizing that water, we remain opposed to their proposal.

Thank you very much....



Peter Struffenegger

General Manager

