November 5, 2007

Mr. John Robertus
Executive Officer
Northern Watershed Unit
California Regional Water Quality Control Board
San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Dear Mr. Robertus:

The purpose of this letter is to provide additional written comments regarding the Tentative Waste Discharge Requirements (WDR Order #R9-2006-0128). These comments are specific to the proposed requirements of zero net discharge of nitrogen (N), phosphorus (P), and Zinc (Z) from our hatchery facility on outer Aqua Hedionda Lagoon (AHL) in Carlsbad, CA. We believe the proposed requirements of zero net discharge of N, P and Z to be untenable and unnecessary, and our rationale for this position is described below.

The Hubbs-SeaWorld Research Institute (HSWRI) was founded in 1963 to conduct research in the tradition of world-renowned scientist, Dr. Carl L. Hubbs. For more than four decades, HSWRI has sustained a tradition of scientific research excellence that remains true to our mission: *"to return to the sea some measure of the benefits derived from it"*. Our research focuses on gaining scientific knowledge and finding practical solutions to the most critical conservation challenges facing marine ecosystems and species. We recognize the promise and responsibility of science and technology to advance positive change and provide lasting benefits to the environment and society. HSWRI strives to ensure that future generations experience the fullest benefits of a healthy environment by conserving the ecological integrity of our oceans and estuaries, marine-based economies and sustainable public recreation toward improving the quality of life for our citizens and the ocean's inhabitants.

Our hatchery in Carlsbad is operated under contract from the California Department of Fish and Game using public funds collected from commercial and recreational fishermen. The purpose of the facility is to raise white seabass from eggs to juvenile size for release back into the ocean as an experimental program to evaluate the feasibility of replenishing depleted stocks using cultured fish. The white seabass program is the nation's largest, most comprehensive replenishment program. and it is widely recognized as yielding positive benefits to the environment – benefits that in our opinion far outweigh the "impacts" of the minute concentrations of N, P and Z in our discharge. To express this opinion quantitatively, during the last five year monitoring period we discharged an average of 2.4 lbs of N, 1.1 lb of P, and -0.27 lb Z per day during the process of annually releasing 27-50 tons of juvenile fish into the ocean (see attachment for quantitative assessment)[1].

From a procedural standpoint the new requirements of our NPDES permit have come as a complete surprise to us. Our facility was opened in 1995 on land designated for aquaculture use by the Carlsbad Land Use Plan (1982) and adjacent to a lagoon where aquaculture is recognized as a beneficial use. During our initial, lengthy 3-year NPDES application process, we openly stated that nitrogenous waste products would be discharged because they are a natural waste product of fish, including those swimming in the lagoon. We were not issued an NPDES permit at that time because we did not meet

[1] Final biomass of fish originating from hatchery at a smaller size; not a hatchery biomass figure.

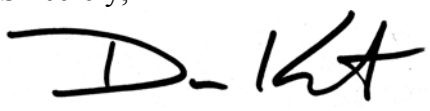
the threshold production limit for a Concentrated Aquatic Animal Production (CAAP) facility. Our operation remains well below that 100,000 lb per year threshold (approximately 20%) but we were issued an NPDES permit in 2001 because of a change in our processes related to meeting new municipal wastewater requirements. Since our initial authorization to discharge into AHL was issued, we have a 10-year monitoring history during which time there has been no notice of violation (NOV) nor notification of any kind that discharge of N, P and Z were problematic at the levels we were reporting. In this regard we have not been given the opportunity to fully explore the sources of these compounds in our discharge or implement additional BMPs to further reduce the discharge of these specific compounds. This remains something we can do but as it stands now, this point is irrelevant because the threshold limits for net discharge are set at zero. While the new WDR gives us four years to explore filtration options to remove N and P, this is not an economically viable solution for our program. Membrane filters are cost-prohibitive to install and operate for a program operated on public funds (i.e. we do not have rate payers to pass these costs on to). We estimate an increase of approximately 30% of our operating expenses plus the associated capital costs. These technologies also have environmental costs that would clearly outweigh their benefits in this particular case (i.e. removing <3lbs per day N and P). We are in a similar dilemma for Z removal, which unlike N and P, requires immediate removal without a four year phase-out period.

While we certainly respect the intent of the Clean Water Act, this tentative ruling is clearly an unanticipated consequence that we feel is both difficult to rationalize and inequitable. The watershed that feeds AHL is 29 square miles of primarily urban and agricultural land. Twenty three storm drains discharge into AHL, as well as urban runoff to the north and agricultural runoff from the south. Our discharge is one of the only point source discharges into AHL so it is an easily identifiable and quantifiable target for regulatory review and action but as already noted the input of N and P from our facility is insignificant. It is also important to note that our discharge is the most westerly discharge that is several hundred yards from the ocean where water quality standards from San Diego Basin Plan merge with the California Ocean Plan, ironically not concerned with N and P discharge.

In summary, we feel that the Tentative WDR is unreasonable and unnecessary as written, and has the likely result of putting our California state-mandated conservation research program out of business within the specified four year time span. The levels of N, P and Z that we are discharging are insignificant in relation to other sources within the watershed and other local discharges into the ocean. This is especially true when our discharge characteristics are put in perspective with the public benefit that is being derived from the fish that are generating these wastes.

While we are fully committed to evaluating all economically achievable alternatives to further reduce the levels of these compounds in our discharge, we respectfully request that the Board exempt our operation from a zero net discharge requirement for N, P and Z.

Sincerely,



Donald B. Kent
President

Attachment

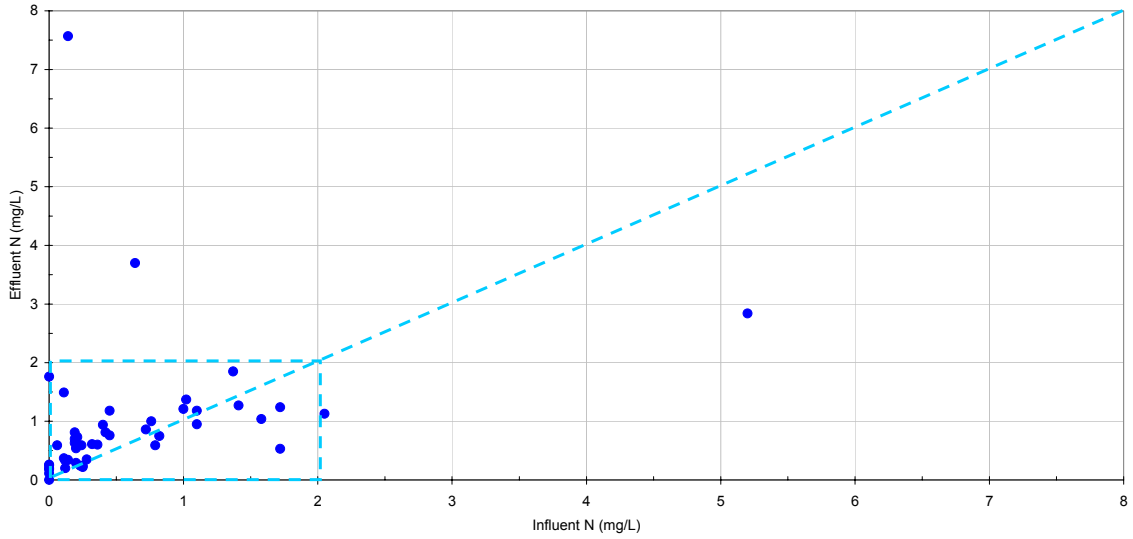
cc: Mark Drawbridge

Total Nitrogen (TKN+Nitrite+Nitrate)

Total N in the influent measured ND to 5.20 mg/L with an average of 0.60 mg/L. Total N in the effluent measured ND to 7.57 mg/L with an average of 0.96 mg/L. Effluent N values exceeded influent values in 34 of 45 monthly samples (76%). The average differences between effluent and influent samples was 0.36 mg/L. Net discharge of N (MER) averaged 4.24 lbs per day.

	Sample Data (mg/L)		Numeric	Net Discharge
	Influent	Effluent	Difference	(lb/Day)
min	0.00	0.00	-2.36	-25.78
max	5.20	7.57	7.43	84.27
mean	0.60	0.96	0.36	4.24
stdev	0.86	1.19	1.27	14.50

With exception of three apparent "outliers" values clustered <2.0 mg/L for both influent and effluent N values with a clear correlation between the two (R^2 without outliers = 0.32).



With the three outliers removed the results are as follows:

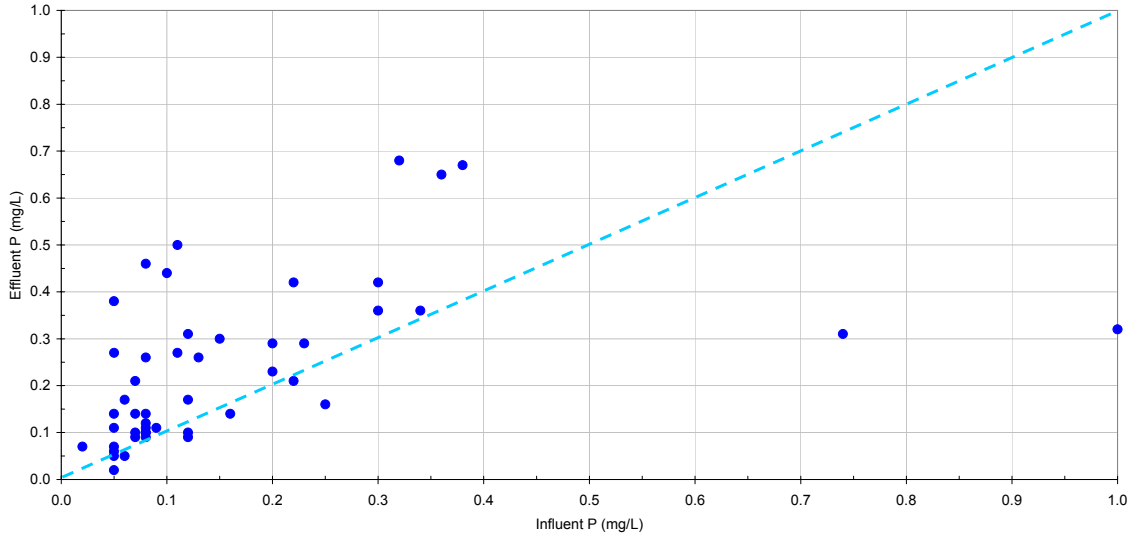
	Sample Data (mg/L)		Numeric	Net Discharge
	Influent	Effluent	Difference	(lb/Day)
min	0.00	0.00	-1.19	-12.70
max	2.05	1.85	1.76	23.07
mean	0.51	0.71	0.19	2.39
stdev	0.55	0.45	0.46	5.48

Total Phosphorus (P)

Total P in the influent measured 0.02 to 1.00 mg/L with an average of 0.16 mg/L. Total P in the effluent measured 0.02 to 0.68 mg/L with an average of 0.24 mg/L. Effluent P values exceeded influent values in 38 of 48 monthly samples (79%). The average differences between effluent and influent samples was 0.07 mg/L. Net discharge of P (MER) averaged 0.84 lbs per day.

	Sample Data (mg/L)		Numeric	Net Discharge
	Influent	Effluent	Difference	(lb/Day)
min	0.02	0.02	-0.68	-7.60
max	1.00	0.68	0.39	4.79
mean	0.16	0.24	0.07	0.84
stdev	0.18	0.17	0.18	2.01

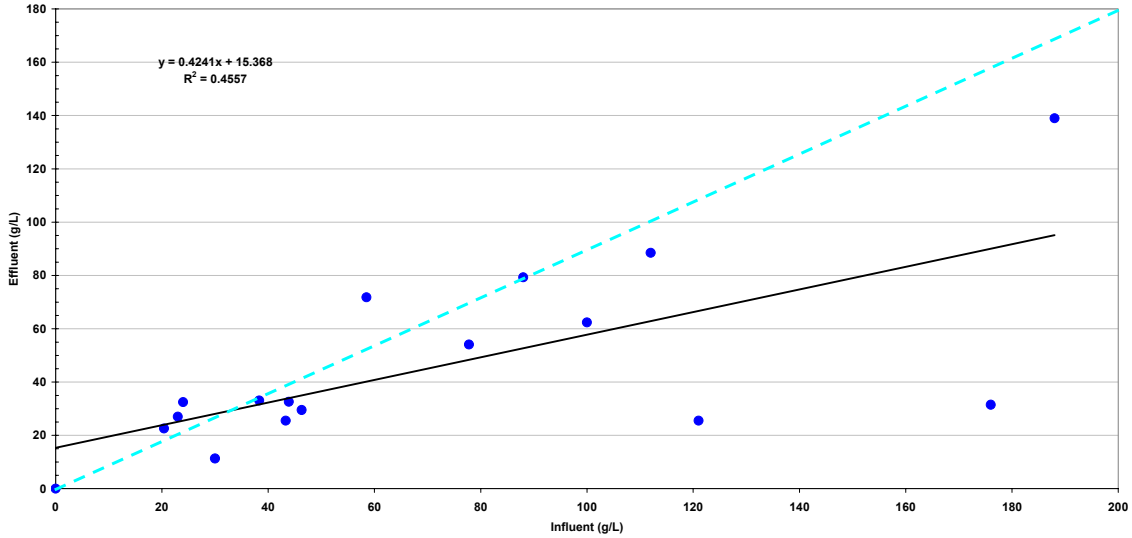
With exception of two apparent "outliers", influent values were <0.4 mg/L and effluent values were <0.7 mg/L with a clear correlation between the two (R^2 = 0.21 and 0.50 with and without outliers, respectively).



Zinc in the influent measured ND to 188 µg/L with an average of 70 µg/L. Zinc in the effluent measured ND to 139 µg/L with an average of 45 µg/L. Effluent zinc values exceeded influent values in 4 of 16 monthly samples (25%). The average differences between effluent and influent samples was -25 µg/L. Net discharge of zinc (MER) averaged -0.27 lbs per day.

	Sample Data (micro g/L)		Numeric	Net Discharge
	Influent	Effluent	Difference	(lb/Day)
min	0.00	0.00	-144.50	-1.82
max	188.00	139.00	13.30	0.14
mean	70.03	45.07	-24.96	-0.27
stdev	54.31	34.12	40.15	0.46

As with N and P data, there was a direct correlation between influent zinc values and effluent values (R2=0.45), indicating that effluent values were influenced strongly by influent levels. Most effluent readings were less than those reported for the influent indicating that overall, the hatchery filtration processes were binding and removing zinc from the water rather than being a net contributor.


y = 0.4241x + 15.368
R2 = 0.4557
Effluent (g/L)
Influent (g/L)
0
20
40
60
80
100
120
140
160
180
200