

## United States Department of the Interior

FISH AND WILDLIFE SERVICE

North Carolina Cooperative Fish and Wildlife Research Unit  
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Mr. William H. Rogers  
NREA Division  
Building 198, Code LN  
Marine Corps Air Station  
Cherry Point, NC 28533

Dear Bill:

At last, here is the report that we have been working on. After talking with you, I discovered an inconsistency in the data and had to go back and re-evaluate our presentation in a couple of tables. I believe that this report contains the information that you requested under this part of the contract agreement, but should it be misdirected or fall short of your expectations, please contact me.

Basically, I found it very difficult to work with someone else's data. I was repeatedly tempted to try to do more with the data than probably could be justified. We explored some additional approaches to examining the data, but finally decided that we were violating too many assumptions to present these data to you.

The data that you have are probably sufficient for identifying elevated levels of metals in Slocum Creek. However, it is not possible to clearly say much beyond that. Comparisons between years, sample locations, species, etc. could not be made so that they could stand scientific scrutiny.

In reviewing the fish data, it is obvious that metal contamination in the biota is not at an alarming level. If metal contamination in Slocum Creek sediments is as severe as what we hear from Riggs' news releases, there is little indication that it is entering the aquatic animals in significant amounts. I have discussed this with Jay Sauber and he tends to agree with this interpretation. Nevertheless, some metals in fish from Slocum Creek are elevated above what might be considered background levels. The biological ramifications of these

metal concentrations to fish and other biotic components of aquatic systems are not fully understood.

From the human health perspective, it is unfortunate that there are few accepted standards against which to judge metal residues in fish. The FDA has a published standard for only one metal. States set their own standards and few, if any, have established them. International standards vary by orders of magnitude. Table 14 presents the Slocum Creek data for comparison with published standards for protection of human health.

Please let me know if you have any questions.

Sincerely,

  
Jim Fleming

Table 14. Comparison of metal concentrations in fish fillets from Slocum Creek, 1990 with international standards established to protect human health. Comparisons are made with lowest and highest international standards as reported in Table 12.

	Extreme limits of international standards	% Slocum Creek samples $\geq$ minimum standard	% Slocum Creek samples $\geq$ maximum standard
Arsenic	0.1-10	10	0
Cadmium	0 <sup>a</sup> -5.5	0	0
Chromium	1.0	40	b
Copper	10.0-100	10	2
Lead	0.5-10	10	0
Mercury	0.1-1.0	43	0
Zinc	30-1,000	7	0

<sup>a</sup>No samples above detection limit of 0.01

<sup>b</sup>Only one standard is presented