

MR 1420

MATERIALS: TESTED:

SAMPLE	SPECIES	LOCATION
A	WHITE PERCH	DEL. RIVER SOUTH FROM HOPE CREEK JETTY
B	BLUEBACK HERRING	SAME
C	ROE FROM A	SAME
D	WHITE PERCH	SAME
E	MINNOW	EDDYSTONE - N.J. SIDE DOWN RIVER FROM TINICUM ISLAND
F	MINNOW	N.J. SHORE ACROSS FROM TINICUM ISLAND
G	UNIDENTIFIED	UNIDENTIFIED
H	WHITE PERCH	DEL. RIVER SOUTH FROM HOPE CREEK JETTY
J	WHITE PERCH	SAME

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ANALYSIS OF FISH FOR METALS

Intro:

All samples were prepared for analysis by atomic absorption at Haskell Laboratory.

Results of analysis for lead were obtained at Haskell Laboratory.

Results for mercury were submitted by Bruce Jolin, I & B Dept., Experimental Station

Results for copper chromium and zinc analysis were submitted by Richard E. Patterson, Orchem Dept, Chambers Works.

PROCEDURE: Samples consisted of flesh from the fish unless otherwise indicated. Samples A through G were prepared by digestion with sulfuric acid, potassium permanganate and nitric acid in a closed system.⁽¹⁾ Samples H and J were prepared by digestion with sulfuric, nitric and perchloric acids in an open system.⁽²⁾ The latter samples could not be used for mercury analysis. Two samples (A and D) were used to determine recovery of metals added as an aqueous solution.

RESULTS:

SAMPLE	WET WT.	NO. OF FISH	FINAL VOL.	ANALYSIS ($\mu\text{g METAL/g FISH}$)				
				Pb	Hg	Cr	Cu	Zn
A	7g	1	200ml	5.7	1.21	6.9	1.7	4.0
B	5.4g	3	100	2.8	0.26	6.1	2.8	7.2
C	7g ROE	1	200	5.7	0.40	6.6	67.	21.
D	6.5g	1	100	2.2	1.04	6.3	2.5	6.0
E	1.75g FLESH & GUTS	1	50	2.9	0.40	6.9	18.	31.
F	6.4g	2	100	3.1	0.28	5.3	5.2	11.
G	6.73g	4	100	3.7	0.21	5.8	3.1	11.
H-1	2g	1	25	1.9				
H-2	3g	1	25	1.6				
J	2.64g	1	25	1.2				
A.N.S. RANGE OF VALUES FOR FISH*				8-23	0.09-1.70	0.7-2.9	0.8-1.9	20.-47.

* Data obtained by Academy of Natural Sciences of Philadelphia River Survey

RECOVERIES:

SAMPLE		Pb	Hg	Cr	Cu	Zn	
WET WT./VOL.	µg METAL ADDED	200	40	40	40	200	
A	% RECOVERED	100%	100%	93%	104%	0%	
7g / 200ml							
D	% RECOVERED	59%	72%	55%	92%	0%-LOSS	
5.7g / 100ml							

- (1) F.W.Q.A. Chicago District Method for the Examination of Mercury in Fish by Atomic Absorption.
- (2) Atomic Absorption Procedure for Lead Analysis (Solid Samples) Haskell Laboratory Clinical Laboratory Method No. 19.

SUMMARY: The results reported indicate lower concentrations of lead and zinc in fish than the values obtained by the Academy of Natural Sciences. However, because added zinc was not recovered the zinc values are questionable. The mercury values are in the same range as the A.N.S. values, but the copper and chromium are higher than the A.N.S. results.