Target Streams

-In 1999, 96 streams were selected

*of those, 12 were too large or estuarine

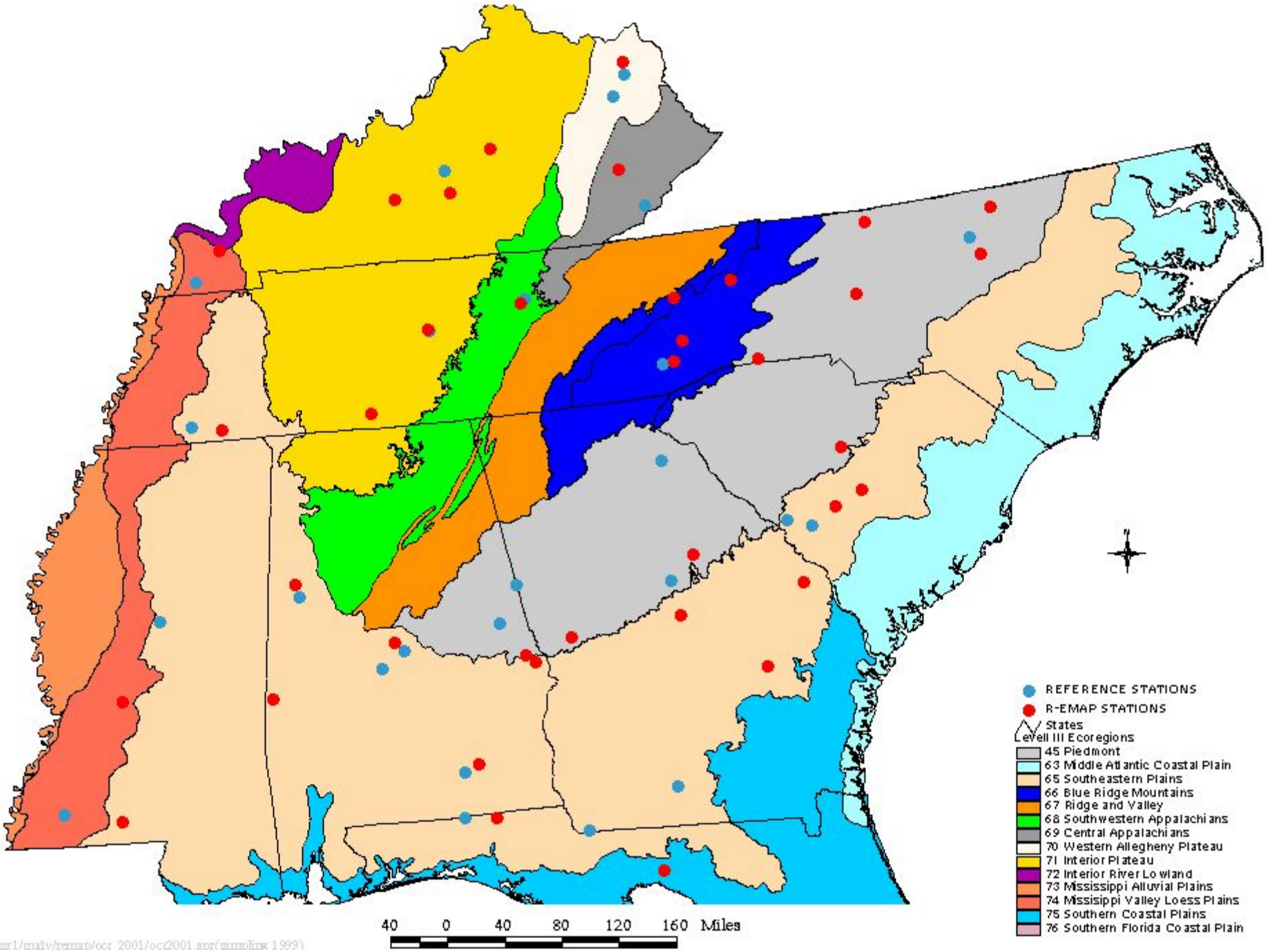
*Permission was requested for 84 sites

*Permission was granted for 62 sites, of which none were inaccessible

*25 sites were non-target for a total of 37 sites being sampled

-14 reference sites sampled

WADEABLE STREAM STATIONS SAMPLED, 1999



-In 2000, 120 streams were selected

*of those, 13 were too large or estuarine

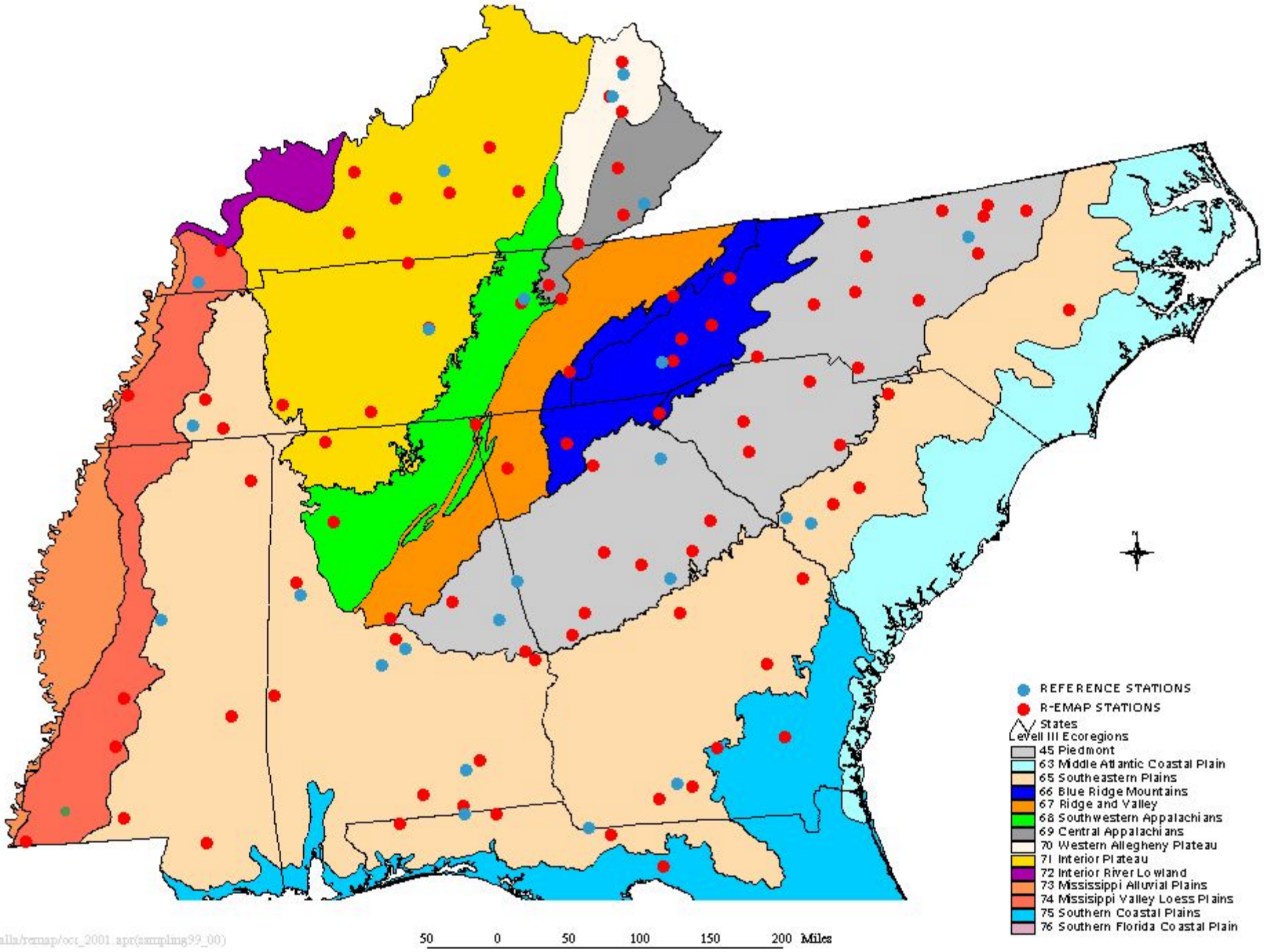
*Permission was quested for 107 sites

*Permission was granted for 88 sites, of which 16 were inaccessible

*17 sites were non-target, so 52 sites were sampled

-9 reference sites were also sampled

WADEABLE STREAM STATIONS SAMPLED, 1999 AND 2000



-In 2001, 140 streams were selected

*of those, 58 were too large or estuarine

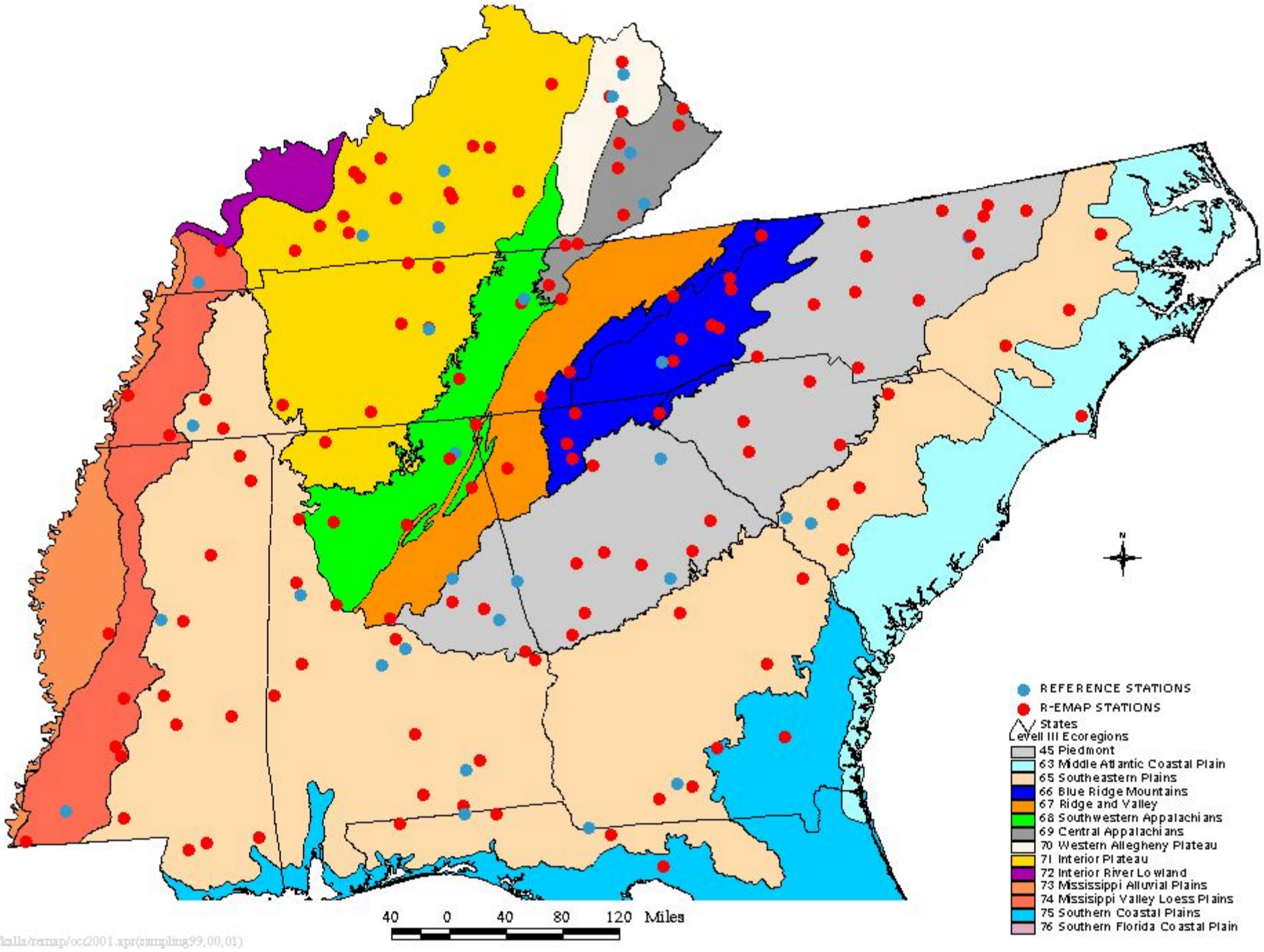
*Permission was quested for 82 sites

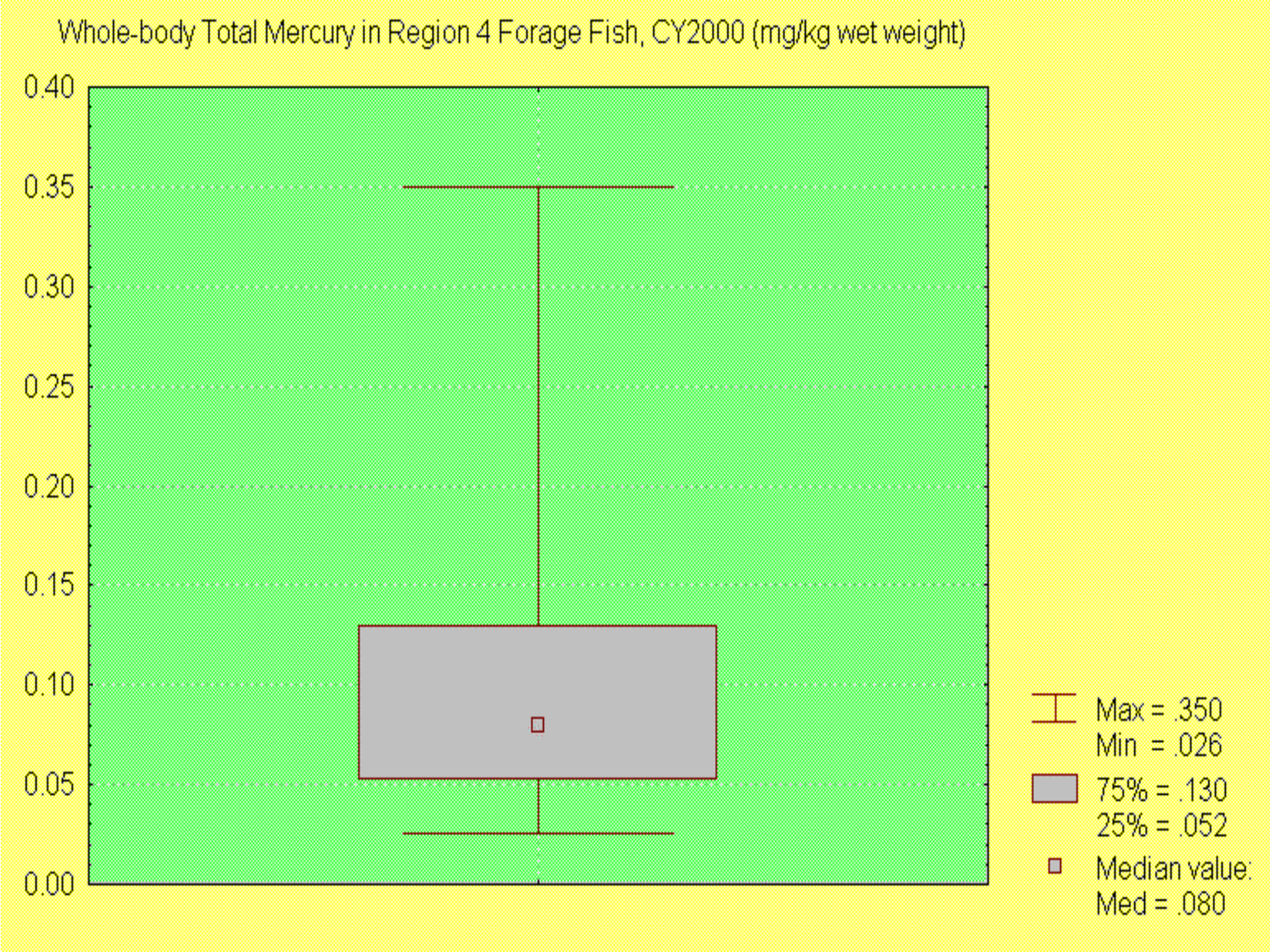
*Permission was granted for 68 sites, of which 2 were too far from a road

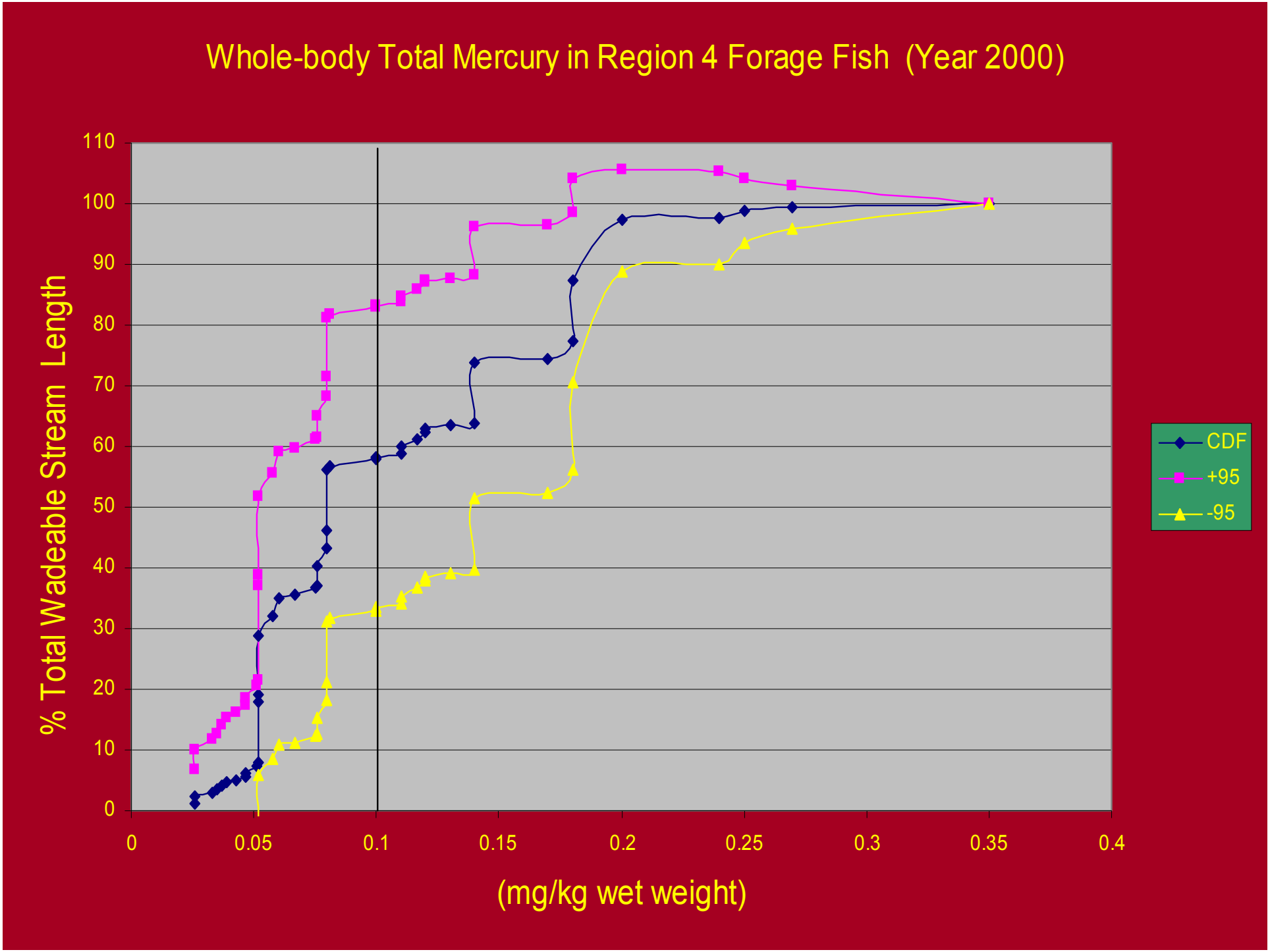
*8 sites were too deep and 2 were dry, so 56 sites were sampled

-5 reference sites were sampled

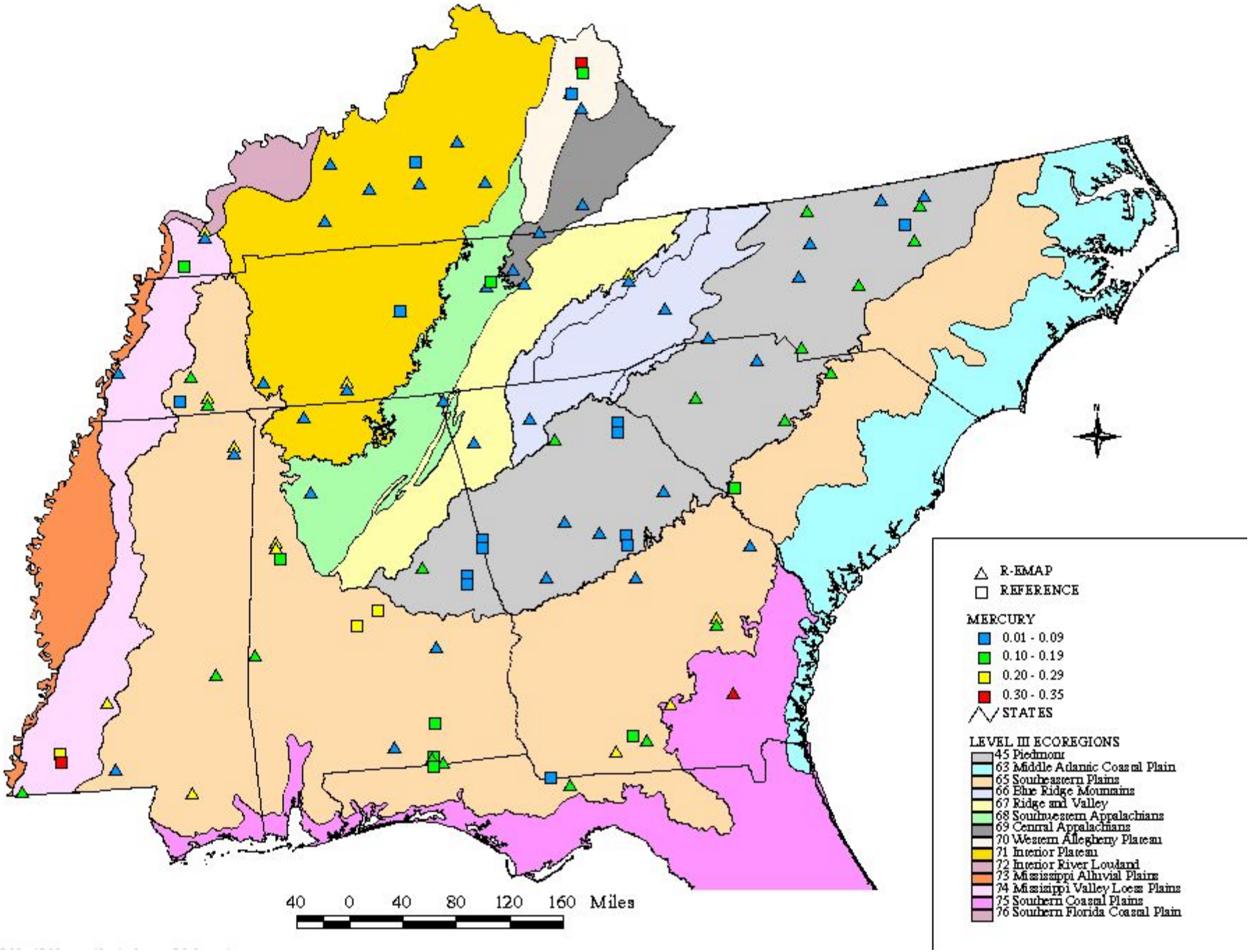
WADEABLE STREAM STATIONS SAMPLED, 1999, 2000 AND 2001




Whole-body Total Mercury in Region 4 Forage Fish, CY2000 (mg/kg wet weight)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Max = .350
Min = .026
75% = .130
25% = .052
Median value:
Med = .080


Whole-body Total Mercury in Region 4 Forage Fish (Year 2000)
% Total Wadeable Stream Length
110
100
90
80
70
60
50
40
30
20
10
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
(mg/kg wet weight)
CDF
+95
-95

TOTAL MERCURY IN REGION 4 FORAGE FISH, 1999-2000



SOUTHEASTERN WADEABLE STREAMS R-EMAP: STATUS AND INTERIM RESULTS FOR MERCURY

Pete Kalla[1], Jim Maudsley[2], Jerry Ackerman[2], and Roseanne Hutchinson[2]

[1]U.S. EPA, Region 4, Athens, Georgia. [2]Mantech, Inc., Athens, Georgia

The Southeastern Wadeable Streams project is part of the Regional Environmental Monitoring and Assessment Program (R-EMAP). The project expands upon what EPA has accomplished to date by applying EMAP sampling strategy and analysis to a Regional study of wadeable streams. The goal of the project is to determine, at $\pm$10% precision with 90% accuracy, the percent of Regional stream miles that are subnominal in terms of habitat, ecological integrity, and trophic state. The third year of field work for this four-year project was just completed, with 56 random and 5 reference stations sampled in 2001. Improvements have been made in data collection efforts over the first three years of the project. Thanks to a quiet hurricane season, no stations were lost to flooding this year. Laboratory identification of the benthic macroinvertebrates collected in CY2000 is now complete. Development of a master database for the project is on-going. EPA has already responded to several requests from states and corporate land owners for data from specific stations, and the nutrient data from the first two years of the project have been entered into the national nutrient criteria database. EMAP data are described by box-and-whisker plots and the cumulative distribution function. For example, the concentration of whole-body total mercury in forage fish sampled in CY2000, the first year in which sample size was adequate for analysis, is depicted here. The median value was 0.080 mg/kg (wet weight), with 58 $\pm$ 25 % of Regional stream miles having a concentration $\geq$ 0.100 mg/kg. Values of 0.100 mg/kg and above are similar to those found in the Everglades, an ecosystem known for bio-accumulation of atmospheric mercury. The occurrence of higher values in wadeable streams of the Southeastern Plains compared to other ecoregions, a pattern first observed in 1999, held true in 2000. Methylation rates are probably higher in the more anaerobic sediments of slowly flowing coastal streams.