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Name

Midterm Exam  
Fisheries Science - WFS 443  
Spring 2010

I. Answer the following 20 short answer questions. (4 points each, unless noted otherwise)

1. Describe the stratification cycle in a dimictic lake. Explain how and why the transitions occur. In Tennessee, are tributary reservoirs dimictic? Main stem reservoirs? (8 points)

2. How does the dissolution of limestone occur in watersheds? What are the end products of this dissolution? Show chemical equations that describe the dissolution.

3. Describe the food chain in a pond listing all phyla of autotrophs and their value.

4. Sketch the cross section of a hill pond dam label parts and give dimensions.

5. How much granular fertilizer (10-10-10) would you add for each dose in a 1 1/4 acre pond? Show work. How would you apply it and how often?

6. Describe the pond check seine contents that would indicate a balanced pond? Explain the reason that the findings are considered good, in each case.

7. Precisely define the following limnology terms. (1 point each for 12 points).

Allochtonus –

Epilimnion –

Photic zone –

Macroinvertebrate –

Retention time –

pH –

Periphyton –

Pelagic –

Benthic –

Benthos –

Oligotrophic –

Littoral –

8. Describe three techniques that TVA uses to mitigate for hypolimnetic oxygen depletion in tailwaters.

9. What are three good ways to improve a channelized stream, what is one way that is not.

10. Tell what happens to each kind of stream load above and below dams.

11. Are all streams and rivers erosive? Explain.

12. Sketch a dendritic stream watershed and label stream orders down to 3<sup>rd</sup>.

13. What is the most important water quality measurement? Explain.

14. What is the one clear cut cause of good year class in reservoir fisheries? How could this be actively managed?

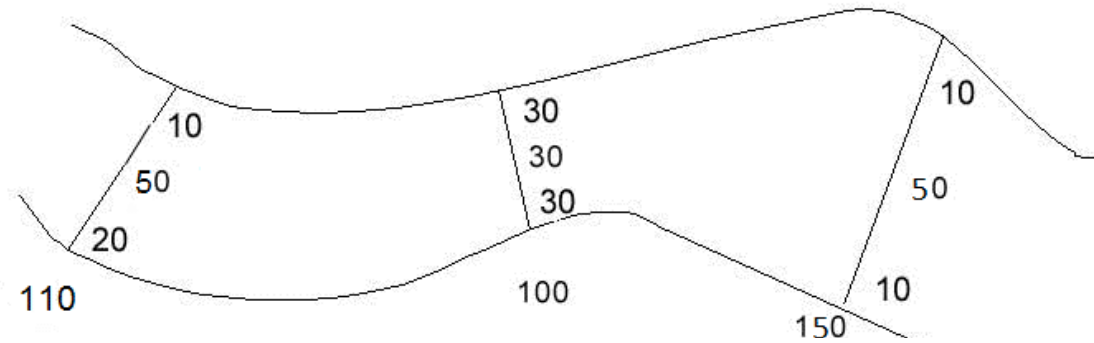
15. You do an access point creel survey using three access points. It is a 6 to 9 daytime, 10 week study period survey. You are able to staff the access points in a random design for 40 hours a week. 9600 hours of effort and 192 fish are recorded in the interviews. What is the catch rate, total effort and total catch? Show work.

16. Describe the cost to raise method of determining the monetary value of fish. What kind of estimate does it always provide? Why?

17. I described the historic pendulum swing from stricter to more lax back to stricter of freshwater fishing regulations in the last 100 years. What category of regulations never swung back? Why?

II. Answer the following questions based on this figure of measurements on a small creek. All values are in centimeters, numbers outside bank are widths, numbers inside bank are depths. The transects are 10 m apart. SHOW ALL WORK.(20 points)

1. What is the mean width and depth of the 20m reach?



2. What is the surface area of the 20m reach?

3. What is the mean cross-sectional area?

4. Given a mean flow rate of 0.3 m/sec, what is the discharge?