

BIO 45 - DISCUSSION #4 - LITERATURE CRITIQUE – 8-10 Oct., 2002

I. PURPOSE:

One goal of this course is learning to evaluate original scientific literature. Today you will analyze a paper by Norris (1999) on the limits to optimal prey choice by oystercatchers. You will evaluate the work he did, and suggest modifications of or extensions to his study.

II. READINGS

Alcock – Ch. 8 pp. 234-235

Norris, K. 1999. A trade-off between energy intake and exposure to parasites in oystercatchers feeding on a bivalve mollusc. Proc. Roy. Soc. Lond. B 266:1703-1709. e-journal

III. ASSIGNMENT: .

Read the pages in Alcock to get some background on optimal prey choice by oystercatchers, The study he discusses (1986) is great background to Norris' study. Then read Norris (1999) paper twice, carefully. First time through, identify the context within which he did his work. Identify: (1) the hypothesis he set out to test, (2) the predictions he made, (3) how he designed his tests, and (4) any assumptions or approximations he made - stated or not. Look carefully at his methods and experimental design, his results and his analysis of these results. Finally, examine the conclusions he drew. The second time through, look for strengths and weaknesses throughout the paper. You'll need at least an hour to read the paper in detail. Consider the questions below as you read.

IV. QUESTIONS:

- 1) What does Alcock's summary of Meire & Ervynck's study tell you about mussel size preference by foraging oystercatchers? In that study, the oystercatchers were hammerers. Why were the bigger sized mussels less profitable than the intermediate sized ones?
- 2) Now think about the Meire & Ervynck study and ask, "What if the oystercatchers were stabber?" Would you expect the results to change?
- 3) What assumptions are made Norris' paper? Are there any controls? Does it matter?
- 4) Is there a null hypothesis in the study? If so, what is it and how is it used? If not, what should it be and what would you use it for?
- 5) Ask yourself questions as you read. You do not have to be an expert to ask good questions. For example, "Do we know the sex and age of the oystercatchers? Does it matter?"
- 6) Can you think of another study to do based on this one? Be ready to briefly outline that study (your question, hypotheses, what data you might need to collect...).

V. A GUIDE TO TABLES AND FIGURES

- 1) I am going to post (on the web site) a guide to reading the tables and figures plus some help with the statistics and the foraging model they used on the web.
- 2) You would use that guide on your second time through the paper. I will post that on the web over the weekend and hand it out in class on Wednesday. Be sure you print a copy from the web if you have a Tuesday or Wednesday section so you will have time to read the paper carefully using the guide.
- 3) Meanwhile, read between the lines or try to work out what is going on in the results section yourself.