

Fishing for Cases: Learner and Instructor Approaches



Geoffrey Habron
Associate Professor
Department of Fisheries and Wildlife
Department of Sociology
Michigan State University
habrong@msu.edu
www.msu.edu/~habrong



Symposium on Fisheries Education in the 21st Century: Accommodating Change.

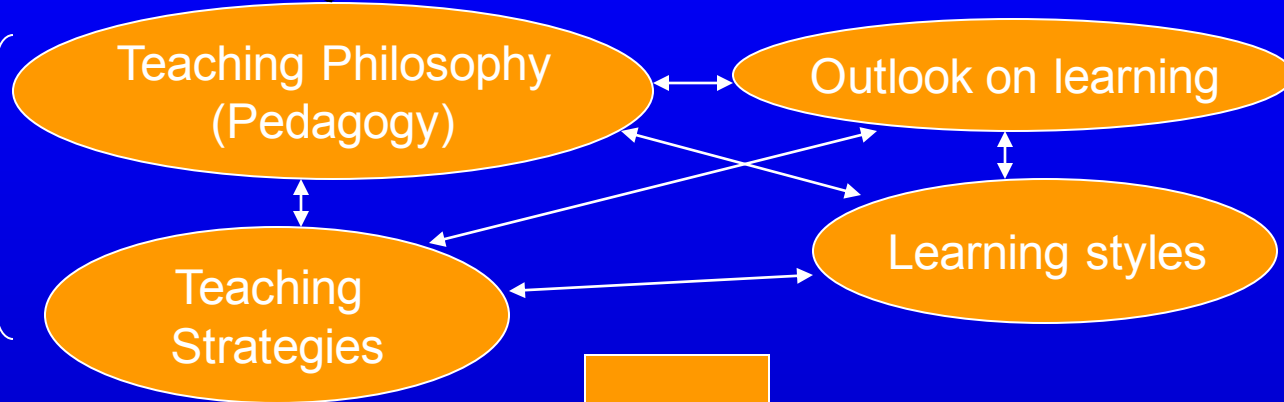
American Fisheries Society Annual Meeting 2009. Nashville, TN

Fishing for Cases Outline

- **I. Theory/concepts**
 - **A. Case studies**
 - **B. FW Principles**
- **II. Actual Case Study Approaches**
- **A. Instructor-centered**
- **B. Student-centered**
- **III. Conclusions**



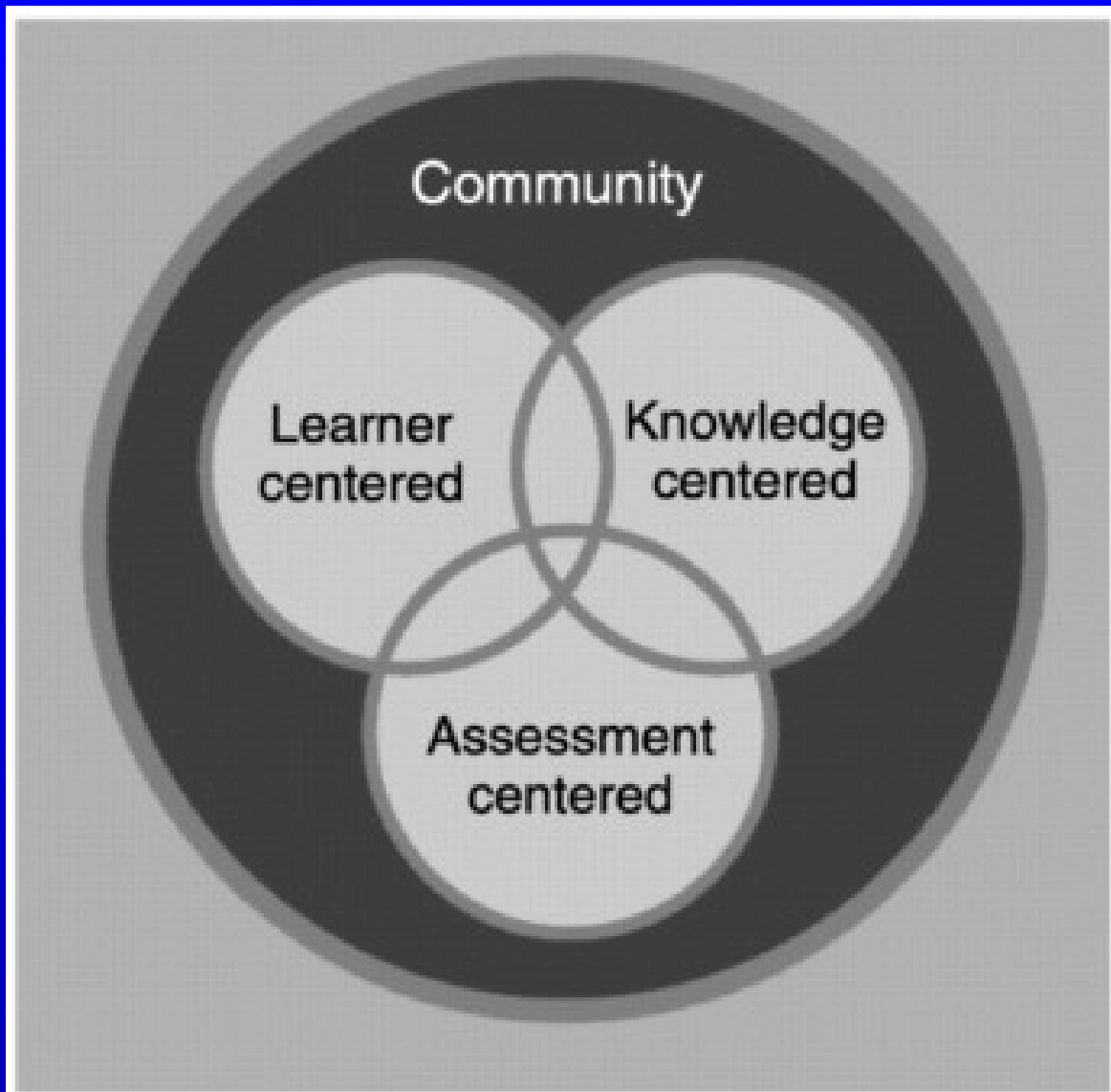
Learning = Instructor + Students



effective

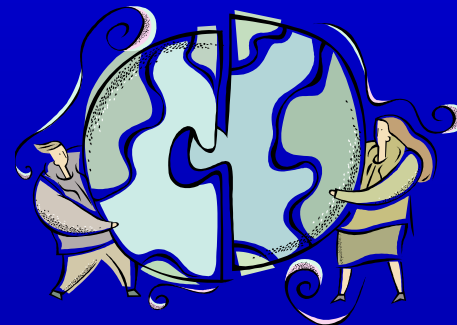
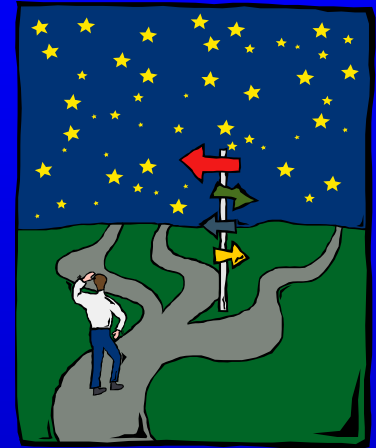
Student Learning Outcomes





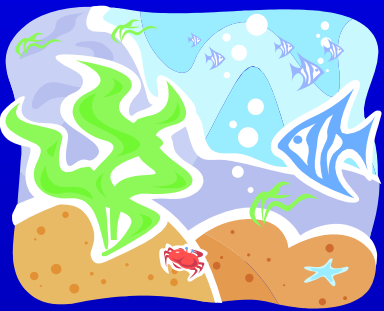
I.A Case Study Concepts and Theory

- Real world application
- Complex
- Open vs closed solutions
- Cooperative
- Active



I. B. Principles of Fisheries and Wildlife Management

- Course description
- Key Principles

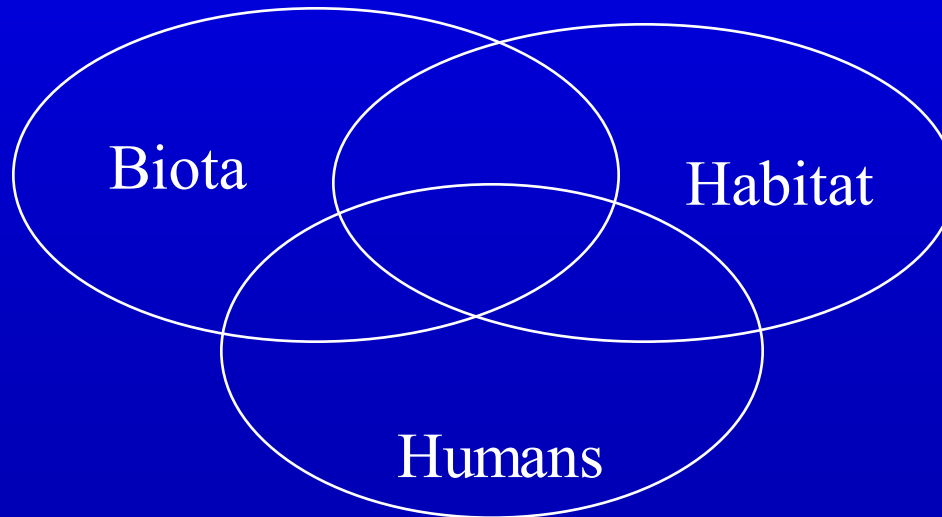


FW100 Introduction to Fisheries and Wildlife

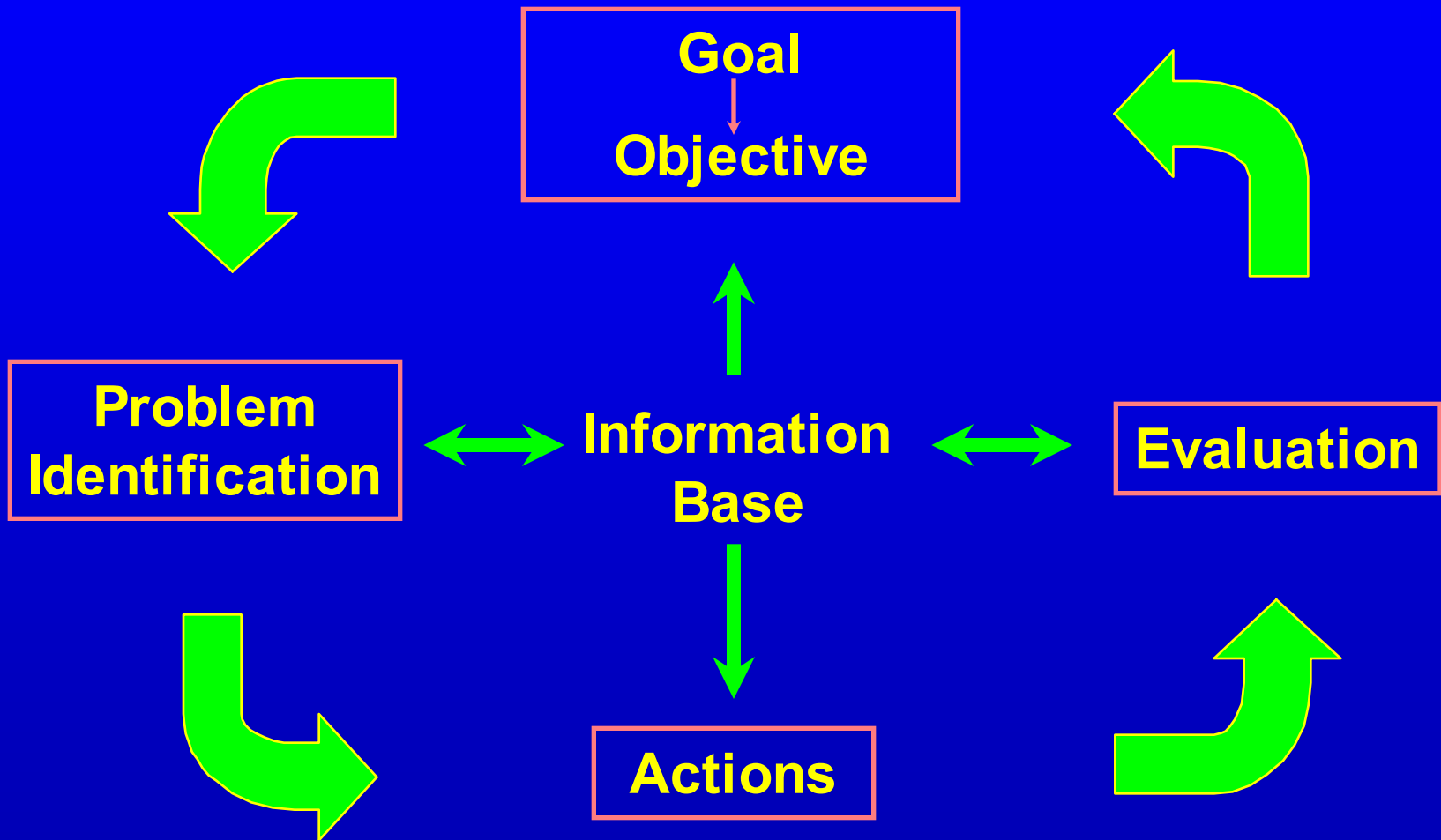
- Required for most majors; required for all incoming first or second year students.
- Class size range of 15-25 in spring, 40-60 in fall
- 3 credits
 - 2 days 50-minute lecture
 - 1 day 100-minute lab

What is Fisheries & Wildlife Management?

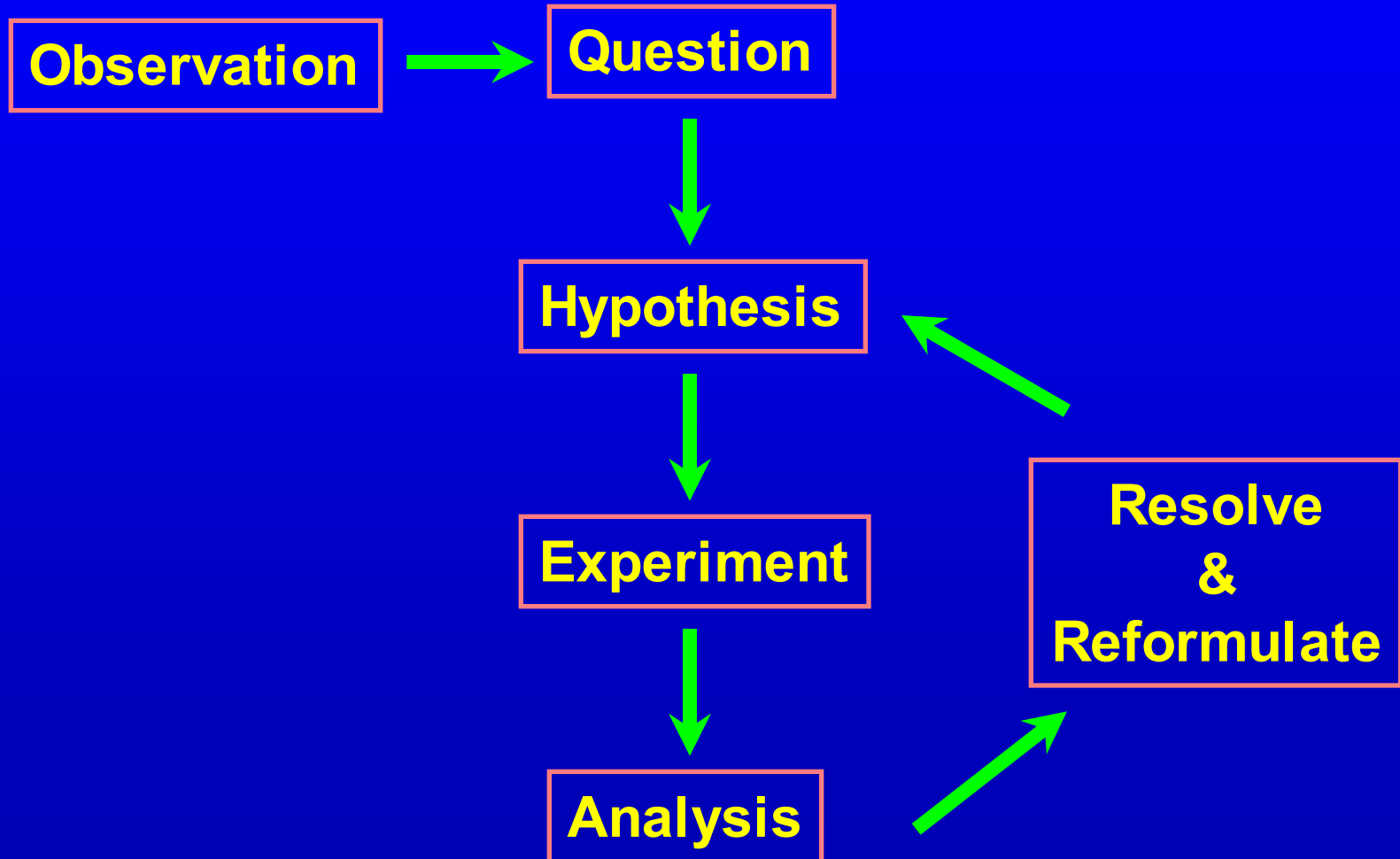
- the art and science of manipulating the biota, habitat, or human users to produce some desired end result.



The FW Management Cycle



The Scientific Method





II. Case Assignments



- A. Instructor-centered
- B. Student-centered



A. Instructor-Centered

- Lake Trout and Tribal Fishing in the Michigan Great Lakes



Great Lakes Fishery Commission	Commercial Fishing	Recreational Fishing	Michigan DNR	Tribal
Nate Cole Craig Kit Mark Lisa	Katie Terry Ryan Abi Andy Marco	Adam Ben Charlie Lauren Jessica M.	Brad Shelbie Kelsey Doug Naomi	Sarah Chris Jacob Jessica W. Allan

Sample Resources Provided to Students

- Population Dynamics of Lake Trout
http://www.glsc.usgs.gov/main.php?content=research_laketrout_dynamics&title=Fish%20at%20Risk0&menu=research_risk_fish
- Michigan Charter Boat Association
<http://www.micharterboats.com/flashindex.html>
- Masinaigan: a chronicle of the Lake Superior Ojibwe. Quarterly newsletter <http://www.glifwc.org/Publications/mazinaigan.htm>
- Oral History Interviews - Fish for All: The Legacy of Lake Michigan Fisheries Management and Policy – Western Michigan University
<http://www.wmich.edu/history/publichistory/projects/commercialoral.html>
- DNR Tribal Coordination Unit
http://www.michigan.gov/dnr/0,1607,7-153-10364_44983---,00.html
- Possible Impediments to Lake Trout Restoration In Lake Michigan.
– <http://www.glfc.org/lakecom/lmc/lstore.pdf>



Concluding Reflection

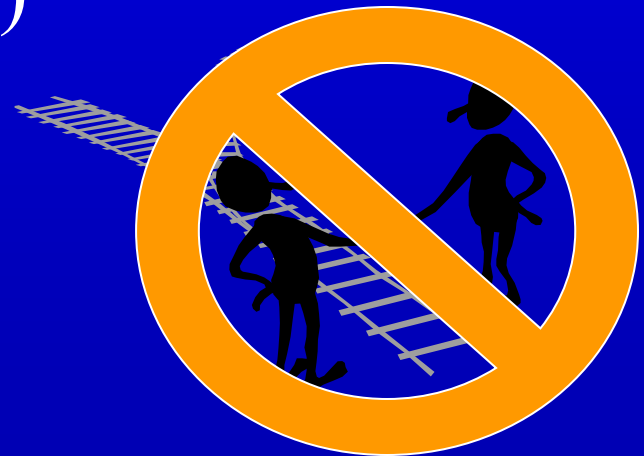
- As a result of the tribal fishing case study, what have you learned about fisheries and wildlife management in general?
- What specifically have you learned about tribal fishing?
- What's the most interesting thing you've learned?
- As a result of the tribal fishing case study I wonder...

As a result of the tribal fishing case study, what have you learned about fisheries and wildlife management in general?

- I discovered that there are many organizations that are involved and have input on fisheries and wildlife issues. I once thought it was only the DNR who was involved. I discovered that organizations such as the Great Lakes Fisheries Commission also have input on cases. (PC fall 2007)



- Conducting research on the MI DNR and tribal fishing made me realize that manipulation of humans, not just biota and habitat, is a key element of fisheries and wildlife management. It may also prove to be one of the most difficult, because many humans do not like to compromise their values. (KC spring 2006)



- I learned that sometimes it takes many years to come up with a management plan that everyone agrees on. Also, these management plans can set time limits after which they must be reformulated. (MA spring 2006)



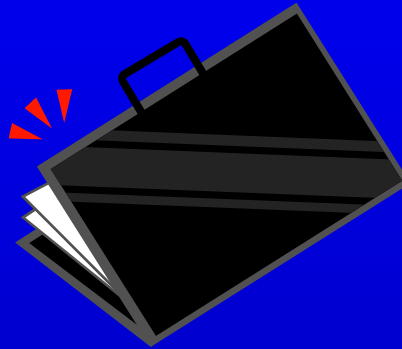
- We talked about stakeholders previous to this lab, but this really brought the whole thing into perspective. You get to see all the different sides of an issue and work with all groups to figure out a solution. (CM fall 2007)





B. Student-Centered

- Portfolios



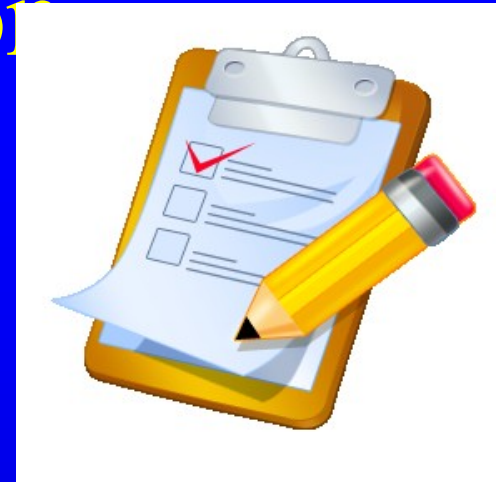


Portfolio Outcomes:



- Demonstrate proficiency in the course outcomes with a topic of strong interest to you.
- Determine the kinds of courses, jobs and experiences you want to pursue during your MSU experience (in-class, out of class, summer).
- Develop lifelong learning skills and resources to pursue other learning interests as they arise.

Portfolio Organization



1. Individual
2. Case Study*
3. Campus Resources
4. Lab Campus Environment
5. Field Project
6. Other Resources
7. Reflection Summary*

Case Study Components

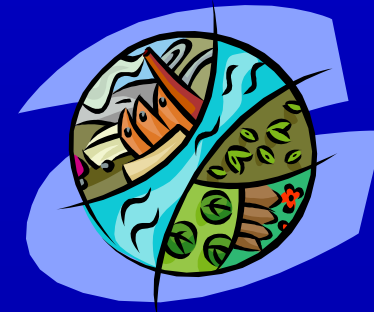
- Management Cycle example
- Definition of fisheries and wildlife
- Scientific method
- Job announcements (3 required)
- Cover letter (for a job working on your case study topic)
- Guest speakers (3 required)
- Websites (3 required)
- Peer reviewed literature (3 required)
- Popular literature (3 required)
- Other resources (3 required)



- *In my Learning Rationale I answered the question “What is your most memorable fisheries and wildlife experience?” by saying “...just sitting on the lake at dusk and watching the sunset over the horizon while you’re fighting a bass into the boat is all the memory I need.” I think that was enough to do my case study in the fisheries department so I can help preserve that which I love to do, and that’s fish. (PK spring 2007)*



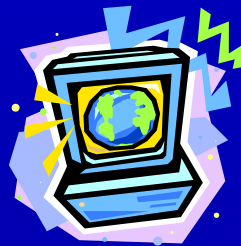
- **Management Cycle:**
- **Problem ID:** *There is too high of a concentration of PCB's, mainly Mercury, in the inland lakes in Michigan, which is bad because people consume these fish thus consuming the mercury which is bad to humans health.*
- **Goal:** *To make as many people knowledgeable about the mercury levels so they will cease, or decrease, eating the fish in thoes certain lakes, and work on preventing any more Mercury from entering in the lakes.*
- **Action:** *To work with businesses that may be dumping harmful substances in lakes, work with the law to enforce regulations on mercury levels, but most of all to make people know about the risk of mercury in fish consumption there must be pamphlets sent out and sessions open to the public to get the word out and known about Mercury levels and fish consumption.*
- **Evaluation:** *It's working for the most part, but there are still people that have not been reached for various reasons, and regulations and laws take a long time and a lot of money to enforce.*
- **Information base** (see references)



- Mercury and Fish Consumption: Medical and Public Health Issues <http://www.ama-assn.org/ama/pub/category/15842.html>
- *Paul Tolmé. Mercury Rising, National Wildlife; Aug/Sep 2005, vol. 43 no. 5*
<http://www.nwf.org/nationalwildlife/article.cfm?issueID=76&articleID=1099>
- *Nevada Division of Environmental Protection; Mercury Fugitive Emissions Contract Awarded.
Published: Apr 16, 2007 at 10:38*
http://www.yubanet.com/artman/publish/article_54904.shtml



- Through this portfolio I've learned a number of different things. The most important would be not to procrastinate, but aside from that I would have to say that I never knew how much information was out there if I took the time to look for it in places other than google and wikipedia. Many things on bass I would have googled, but now I know I can get on the MDNR website and follow the links and I can get the latest updates on any largemouth bass problems in Michigan. I know where to find job listings when I'm looking for one some day on Texas A&M website. I know how to organize a million page paper so it doesn't look like "gibberish", I know how to sort through what good and credible and what's not, etc. (PK spring 2007)



Case study

Management Cycle
example-5

5

Definition of fisheries
and wildlife -5

5

Scientific method -5

5

Job announcements (3)

3

Resume/cover letter -2

2

Guest speakers (3)

3

Websites (3)

3

Peer reviewed literature
(3)

1

none peer-reviewed; nancy nate's
thesis does not count

Popular literature (3)

3

Other resources (3)

2

missing 1 reference



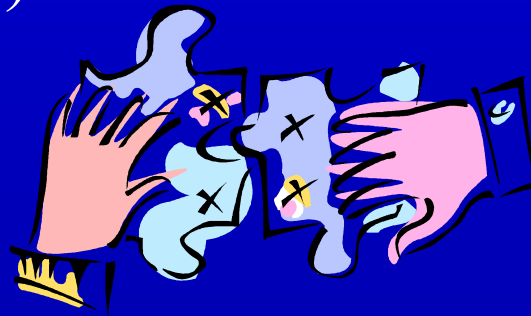
Portfolio Case Study I

- The case study section of my portfolio gave me a rough idea as to what a lot of work is like in the fisheries and wildlife job fields as well as some job titles. I could definitely see myself being a part of constructing artificial reefs and placing them in Lake Michigan along with studying the effects of this through observation and field work.
(VA spring 2007)



Portfolio Case Study II

- This portfolio has taught me more than I expected about my specific interests in fisheries and wildlife while also providing me with better methods in finding a job no matter what field to which I aspire. For instance, choosing the peer reviewed literature for inclusion in this portfolio gave me a chance to look at a more in-depth view of overall Steelhead biology. This also helped me to realize how the management process for Steelhead was part of an Alewife management tool. (CR fall 2006)



Portfolio Case Study III

- However, the most important thing about this portfolio is how it connects all the aspects of this class. I realized how one can find references and do research about anything. I noticed how the definition, management cycle, and scientific method apply to everything and other references as well.
- This knowledge will help me in the future when I'm doing research, case studies, or even when I'm just trying to connect ideas in Fisheries and Wildlife. When I do future research I will know the best places to look for information and how to quickly and efficiently find information. Also I will know how to take information in little doses and process it. The case study section in particular will be helpful to me next semester when I take FOR 466, Natural Resource Policy because the course description says the class will be based on case studies. In addition, knowing how to connect ideas is always a good step toward problem solving. (HC fall 2006)

Conclusions



Students most frequently state that:

- The tribal case study enabled them to:
 - 1) recognize the complexity of fisheries management and
 - 2) apply science and management principles in a real setting.
- The portfolio case study enabled them to:
 - Gain better appreciation for career aspects of fisheries profession
 - Improve their organizational and resource acquisition skills

Learning That Lasts

- “The case studies collectively can help generate what some teacher-scholars call ‘learning that lasts.’ This process helps learners develop a deep understanding of content, contributes to their personal development, fosters their effective performance in professional settings, engages them in productive social and civic roles, and fosters learning processes throughout their lifetimes (Mentkowski and Associates, 200).” (Habron and Dann 2002:56).



References and Resources

- Commission on Behavioral and Social Sciences and Education. 2000. *How People Learn: Brain, Mind, Experience, and School*. National Academy Press. <http://www.nap.edu/catalog/9853.html>
- Habron, G. (2005) Infusing democratic, constructivist and active learning in fisheries education, *Fisheries*, 30 (4), 21-26
- Habron, G. and S. Dann (2002) Breathing life into the case study approach: active learning in an introductory natural resource management class. *Journal on Excellence in College Teaching*, 13 (2), 41-58.
- Herreid, C.F. (2001). Don't! What not to do in teaching cases. *Journal of College Science Teaching* 5:292-294.
- Mentkowski, M. and Associates. (2000). *Learning That Lasts: Integrating Learning, Development and Performance In College And Beyond*. Jossey-Bass.
- Meyers, C. and T.B. Jones. (1993). *Promoting Active Learning: Strategies For The College Classroom*. Jossey-Bass.



Thank You! ☺
habrong@msu.edu
www.msu.edu/~habrong

