**Earth and Space Science (PHSC102)**

**Socio-Environmental Synthesis (SES) case study**

**The issue: Reservoir Water Quality deterioration**

**Focal Question**

The drinking water supply for Baltimore city primarily comes from three reservoirs (Liberty, Lock raven and Prettyboy). The water quality in these reservoirs has been deteriorating over the last decade and immediate intervention is necessary. Focusing only on the Liberty reservoir, **w*hat do you need to know (*WDYNTK) *in order to fully understand the causes of the problem?***

1. Prior to class, think about the task assignment above and generate a typed list of everything you would need to know in order to answer this question. Be as specific as possible, and think as broadly as possible. Remember, you’re not being asked to actually answer the question, just to lay out everything you’d need to know in order to do so. Bring TWO (2) COPIES of your TYPE-WRITTEN list to next class – one you will turn in at the beginning of class, and the other you will use in a small group for the next step.
2. After you turn-in your WDYNTK list you will be assigned in “expert” groups - *Jigsaw Step 1*
3. Write down each listed item onto individual post-it notes. On a white/black board organize the post-it notes with your ideas into categories or groups that make sense to you and your group. Feel free to re-write, modify or refine the items as you go. You may want to move the post-it notes around several times to see which spatial arrangements best represent the ideas and relationships you think are important.
4. Based on the arrangement of your post-it notes, each student creates a “systems map” that shows how the items (groups or components) relate to each other and to the focal question. You may copy what is on your group’s large piece of paper directly onto your own. You may also want to change the map as you write it down. Draw lines between ideas that are related, and write a brief (2-3 words) description next to each line that defines the nature of the connection. Ideally, your diagram will show your best thinking about the system that applies to our research question.
5. At the end of this exercise, you will turn in the system map and a 2-3 page summary report describing your activities and findings. It is also expected that you give an oral presentation.
6. You will then be re-assigned to “synthesis” groups by taking an ‘expert’ from the expert group
7. Discuss the components in the same way you did in Steps 3 and 4
8. At the end of the exercise, you will turn in your revised systems map and final synthesis report and give oral presentation

**Final product**:

* A list containing “What Do You Need to know” (WDYNTK) conceptual exercise (individual list),
* Expert group pre-systems map (group report),
* Narrative report explaining the interconnectedness between factors on the pre-systems maps (group report),
* PowerPoint slides for oral presentation by the ‘expert’ group (group report),
* Revised concept maps by ‘synthesis’ group (group report),
* Final narrative report (group report)
* Final oral presentation (group report)

**Assessment**:

* Standard rubrics will be used to assess systems maps, oral presentation and final report

*Reference:*

[*http://pubs.usgs.gov/sir/2011/5101/pdf/final\_sir2011-5101\_508.pdf*](http://pubs.usgs.gov/sir/2011/5101/pdf/final_sir2011-5101_508.pdf)