**Plastics in the Ocean- *Where do they come from?***

**Class meeting 1**

Introduction to course: Distribute a syllabus with only the first two weeks of topics included.

Explain to the class that the complete schedule of course topics will be distributed at the third class meeting, after we complete our first exercise. This is because we will use the first exercise to determine the order in which we will address the topics.

Administer a one minute paper assignment with the prompt:

*In what ways to people interact with the ocean?*

Collect the one minute papers and save until the end of the semester, when the same prompt will be used. A comparison of the answers will be used to assess the success of this exercise.

Start of plastics module

Spend the last 10 -15 minutes of the class meeting starting the module with the goal of preparing the students to think deeply for the homework assignment.

Show this video (link below) to hook the students on the topic. Since the video is emotional, and may alienate some students, you may want to preface it with a short introduction. You can acknowledge the emotional nature of the content and request that they put emotion aside and just consider the evidence presented.

<http://www.youtube.com/watch?v=9DA4vb9bbQQ>

After watching the video pose a question to the students:

*Where did the plastic in the baby albatross come from?*

Let students provide some answers and use this as an opportunity to encourage them to dig deeper in the homework assignment.

Be prepared- for students to focus on the fact that there are many types of plastics. To prevent them getting side tracked by this acknowledge this fact and state that, for our purposes, there is no need to subdivide plastics.

Homework- For the next class meeting, complete the homework assignment to produce a chain of events leading to the albatross chick ingesting plastic.

**Class meeting 2**

It is likely that students will have developed chains of events that start with plastic in consumer goods or packaging. Through prodding, and appropriately delivered information, the chain arrived at in this exercise should start and end with plankton in the ocean. See the oil plastic mind map for one arc that could be the product of this exercise.

1. 5 minute exercise. Randomly assign students to groups of 3 or 4. Have each group combine, edit, and/or change the chains they produced as homework.
2. 2 minute exercise. Each group puts their chain on a giant post-it and puts them in the front of the room.
3. 10 minute exercise. Find commonalities in the chains. Make giant post-its of the commonalities and put around room in agreed upon sequence.
4. 5 minute exercise. Small groups reconvene. Give each group some giant post-its. Fill in steps in between the commonalities and post them in an appropriate place.
5. 5-10 minute exercise. Examine post-its as a class. Is there anything missing? If so, reconvene groups and figure it out. Then more post-its.
6. 5 minute exercise. Class comes to a consensus on plastic cycle. Instructor may add in a few steps, or change order if it makes sense.
7. 10 minute exercise. How do we (humans) fit into this cycle? Have students identify specific ways that they fit into the cycle. Use different color post-its for this part.
8. Pose the question :

*What ethical questions does the problem of plastic in the ocean raise?*

Through the semester, as we return to the cycle, the human role in the cycle can be examined in more detail. This sets the stage for a discussion or activity where students look at benefits (jobs, quality of life, etc.) and costs (pollution, climate change, ocean acidification, quality of life) of human interaction with the ocean and this naturally leads to geoethics.

**Class meeting 3**

Distribute

1. Mind map of the work from the previous session.
2. Schedule of course topics and readings that are derived from the mind map.

**Ongoing**

As topics are covered keep returning to the mind map. Design exercises that require students to use the content they learn to make ethical decisions.

**Extension**

A beach cleanup and a tabulation of the types and amount of plastic recovered would make a nice follow up to this exercise. See the references for websites where beach cleanup results have been tabulated. Students can compare their results to other locations.