

Lesson Plan Topic: The Great MPA Debate**Designed by:** Susan Gerbasi**Grades:** 11/12 Oceanography**Time:** 2 class periods (1 for research, 1 for debate)

Background: This will be a culminating activity for a unit on Marine Resources in an Oceanography course. Students will work in small groups representing a different group involved in the MPA process. After conducting research on their specific region and their distinct role they will present their findings in a debate.

Students will select their region by using GIS/ ArcView software and get accurate data on current fish counts in their region from Fishbase or other web sites. They will compile the data available and make a local marine map showing which species are present and their abundance with supporting graphs and/ or charts.

Content Standards: Virginia Standards of Learning

ES.11: The student will investigate and understand that oceans are complex, interactive physical, chemical, and biological systems and are subject to long-and short-term variations:

- Importance of environmental, geological, and economic implications
- Public policy issues concerning the oceans

Ocean Literacy Standards:

5. The ocean supports a great diversity of life and ecosystems.
6. The ocean and humans are inextricably interconnected.

Lesson Plan Objectives:

1. Students will learn how to conduct research in setting up and monitoring a marine reserve/sanctuary.
2. Students will compile, analyze and interpret how this data will support their role in determining a local marine protected area.
3. Students will orally present their findings in a debate format.

Vocabulary: 4 types of MPAs-Marine Protected Areas and Roles of Key Players in the MPA Process**SMRs**-State Marine Reserves**SMPs**-State Marine Parks**SMCAs**-State Marine Conservation Areas**MMAs**-State Marine Recreational Management Areas**Science Advisory Team:** apply science guidelines and give feedback/advice for MPA proposals**Blue Ribbon Task Force:** various community leaders/experts who are trained to take MPA's law and see if process is followed in each region of state.**Regional Stakeholder Group:** formulate the size, type and location of MPA's

Fish and Game Commission: governing decision-making body who accepts the MPA final plan

Materials: Computers with GIS/ArcView software, Fishbase and other relevant fish count sites, Graph making software

Procedure: Each student team will have a different role in the MPA process:

1. **Blue Ribbon Task Force:** industry and community leaders/experts who are trained to see if the MPA's process is followed in each region of the state. Students will investigate the legal aspects of MPA's and look at already established MPA's in California to see what should be done in the Atlantic region.

2. **Scientific Advisory Team:** provide the scientific data on fish/ marine organisms. They will find recent data on fish population counts and/ or targeted species and the various habitats present in their specific region. Provide marine maps showing distribution/abundance of important species in the area.

3. **Regional Stakeholders:** represents local ocean industries, commercial fisheries, and recreation and conservation methods best suited for this area. Have maps showing various uses of the MPA area and get to decide the location, size and type of MPA's which should be established in their region.

Students will research their location and determine which fish species/ marine organisms are being fished or targeted in this area. They will find the current population count using Fishbase or other useful websites. They will determine where the exact location, size and how close together the boundaries of the MPA's will be using GIS/ArcView and create various marine maps. They will learn how to develop a proposal to implement their particular MPA for their specific region. Students will then present their findings to the rest of the class in a debate forum. The best supported MPA will get the proper funding to achieve their goals.

Fish and Game Commission: oversees process, makes final decisions based on all interests and accepts the final MPA plan. (This will be my role not the students.)

Assessment:

Informal assessment: students will submit a draft of their MPA location/ proposal

Formal Assessment: Oral presentation during debate and marine maps