EP-22



OEAGLS-Oceanic Education Activities for Great Lakes Schools



# IT'S EVERYONE'S SEA: OR IS IT?

by
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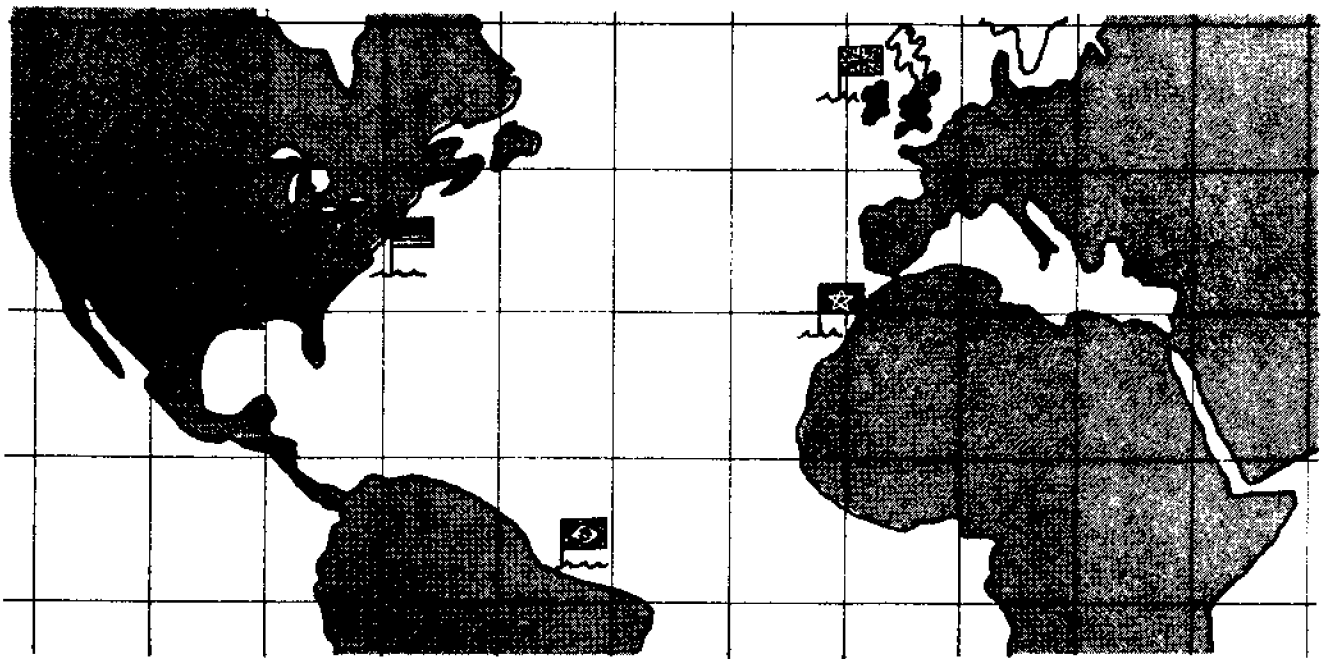



Ohio Sea Grant Program
Charles E. Herdendorf, Program Director
Victor J. Mayer, Principal Investigator

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# ITS EVERYONE'S SEA: OR IS IT?

## INTRODUCTION

Have you heard of the "cod war" between Iceland and England? Cannons were shot and boats of the two countries tried to ram each other. Do you know why six tuna fishing boats owned by Americans were seized by Peruvian navy ships, almost starting a small war between our nations? Both of these events relate to a nation's right to use the resources of the sea. Here in Ohio we have had arguments with the Canadian government about fishing rights in Lake Erie. Many countries of the world are now in conflict over using the resources of the sea. Fish, petroleum, and other mineral resources are found along the margins of the continents. And many countries want to use the manganese nodules that are scattered over some of the very deep parts of the ocean basins.

When you have completed this investigation you will:

1. Know the general shape and topography of the Atlantic Ocean Basin and of the continental margins that surround it;

2. Be able to identify a country as belonging to one or more of eight categories, because of its relationship to the sea;

3. Know the basis of conflict between nations regarding the use of the seas;

4. Understand the problems associated with passing and enforcing a law of the sea; and

5. Understand the bases of arguments between Canada and the United States about fishing rights in the Atlantic Ocean and in Lake Erie.

## ACTIVITY A

### WHAT IS THE SHAPE OF THE ATLANTIC OCEAN BASIN?

### MATERIALS

Map of the Atlantic Ocean and of the Atlantic Ocean Floor.

### PROCEDURE

In this activity you will learn about the margins of the Atlantic Ocean, their topography and the varying depths to the floor of the ocean.

To determine distances you will need to use the scales in the left margin on page 2. They are adapted from the scale that appears in the lower right hand corner of the map entitled Atlantic Ocean. Because the world is a sphere and the map of it is flat, there is distortion. The actual distances between points an inch apart on the map, for example, may be different depending on how far they are from the equator. Therefore, when you are measuring distances on the map, note the latitude and use the scale for that latitude.

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1. Identify the continental shelves along North America, South America, Europe and Africa. Describe below the general topography of continental shelves.

_____

_____

_____

_____

_____

What is the average maximum depth of water over the continental shelves?

_____

2. Use your ruler and the scales to the left to measure the approximate width of the continental shelves at the following places:

New York: _____

Mouth of the Niger River: _____

South of Reykjavic, Iceland: _____

For the remainder of this activity, use the reverse side of the map; it is entitled The Atlantic Ocean. Look at the blue contour lines in the ocean. These tell you the depth of water. Note the first one out from the edge of the continents. It encloses the lightest blue regions on the map. In some places it is labeled with a "100." It is the 100 fathom line. A fathom is equal to six feet.

3. What is the depth of water in feet along the 100 fathom line?

_____

4. What feature does the 100 fathom line mark? _____

5. There are several basins such as: Argentine Basin, Angola Basin, Brazil Basin, and North American Basin. What appears to be an average depth for the floors of these basins in fathoms?

_____

6. What is the width of the Straits of Gibraltar? _____

Each line above represents the distance of 200 miles at the latitude indicated below the line.

0 20 40 50 60

7. What is the width of the narrowest part of the English Channel?

_____

8. What is the width of Lake Erie? _____

9. Locate the following countries. Describe the extent of coastline each has and the width of the continental shelf.

USSR _____

_____

Bolivia _____

_____

Nigeria _____

_____

Iceland _____

_____

Yugoslavia _____

_____

Spain _____

_____

Bermuda Islands _____

_____

Rich deposits of manganese nodules are found in the basins of all oceans. These nodules are rich in several different metals including cobalt, nickel and copper. Deposits of oil are found along the continental margins.

10. You may have heard about the oil under the North Sea. What countries own that oil?

_____

Natural gas and some oil are found under Lake Erie, one of the Great Lakes.

11. Locate Lake Erie. What country or countries claim ownership of Lake Erie?

_____

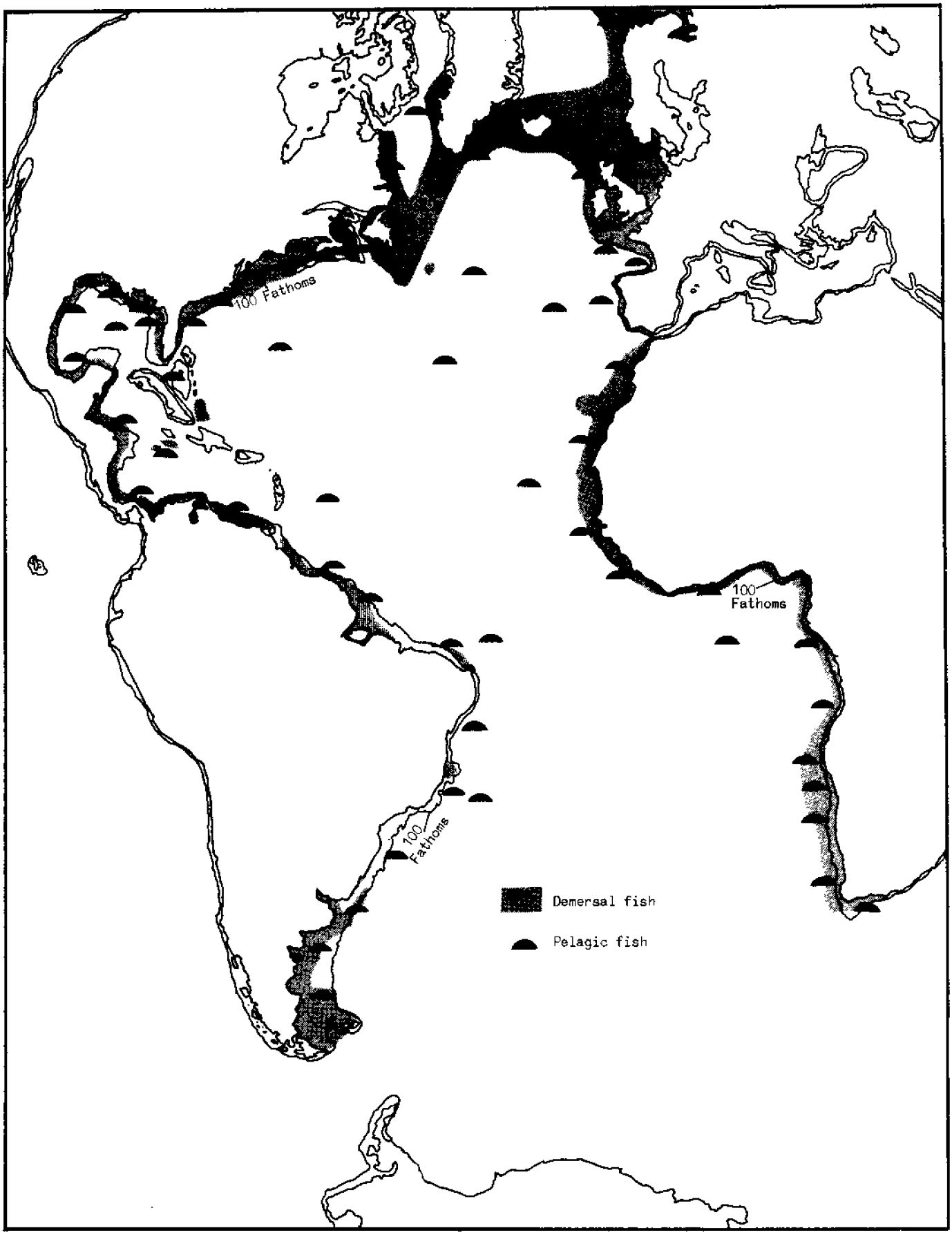



Figure 1. Fishing Areas of the Atlantic Ocean.

Figure 1 is a map of the Atlantic Ocean showing the important fishing areas. There are two types of fish caught. One group is found only in the shallow shelf areas. They feed off the bottom of the sea and are therefore called bottom-dwellers (or demersal fish). The pelagic fish feed on plants and animals that float or swim close to the surface of the water. They can be found almost anywhere in the ocean, but especially where food is plentiful.

12. In what general areas are the major fishing zones found?

_____

13. Identify three areas of the world where conflict over fishing rights might occur.

_____

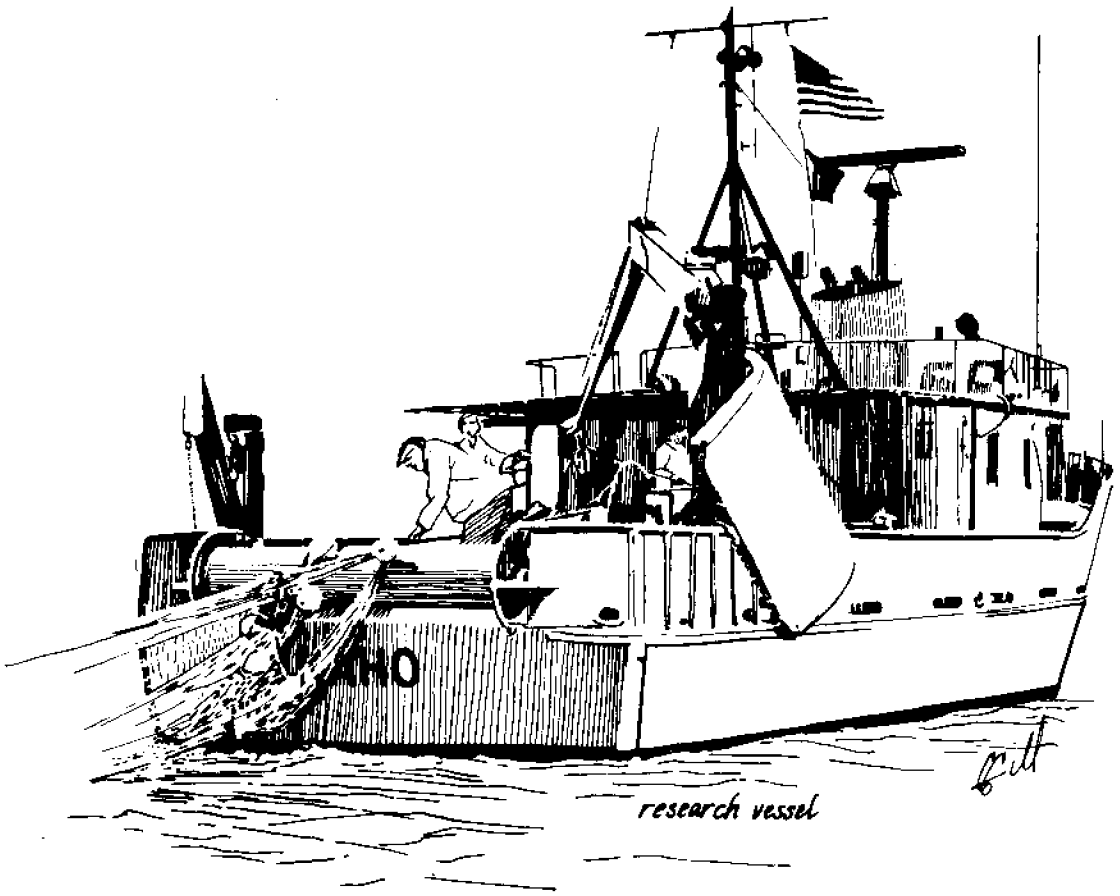
_____

_____

14. What countries have the right to mine the manganese nodules?

_____

_____



ACTIVITY B — WHO OWNS THE SEA?

MATERIALS — The same maps used in Activity A and a set of role-playing cards.

Determining the rights of countries to parts of the sea and seabed has become a very important problem. In the seventeenth century two types of rights were commonly accepted by all countries; territorial seas and high seas. Territorial seas extended three to six miles out from the coastline of a country. The country had complete rule over this zone, except that any ship had the right of "innocent passage," that is, movement that did not threaten the safety of the country. Beyond this were the high seas in which any country had both free movement and fishing rights.

With the Industrial Revolution came greater use of fish from the oceans and recently the discovery of energy and mineral resources in the sea bed. Countries began to compete for these resources. In 1973 the United Nations held the third conference on the Law of the Sea to draw up rules and regulations for all countries to follow, to provide for a fair division of those resources. This part of the activity will simulate a meeting of the Law of the Sea Conference.

PROCEDURE — Four actions are being considered for adoption.

I. Establish a 12-mile Territorial Zone in which the customs, sanitary, and financial laws of the country would be enforced.

II. Establish an Exclusive Economic Zone, 200 miles wide, in which the nation would have wide control over living and mineral resources in the water and the sea bed. Other nations would keep the traditional freedoms of navigation, overflight and the rights of cable-laying and pipelaying.

III. Establish an International Seabed Authority which would develop and use the area of the sea beyond the 200 mile Exclusive Economic Zone in cooperation with the bordering states. Half of the resources would be controlled by the Authority and given to the countries that do not border the oceans.

IV. Establish a Pollution Tribunal which would act to control pollution from ships.

There are eight countries that will take part in this conference. They represent the different interests countries have in the sea, because of their location, industries and development. Each of the world's countries belongs to one or more of eight categories; straits, fishing, island, maritime, limited-shelf, land-locked, developing and developed. Your teacher will assign you to one of the eight countries: United States, Russia, Bolivia, Nigeria, Spain, Iceland, Bermuda, and Yugoslavia.

Each country is to take an official stand on the proposed actions of the conference. A country can also propose that an action be changed or a new one adopted, provided it can get the support of one other country. You will follow this order of activities.

1. Assignment of students to one of eight countries by the teacher.

2. Read the role card for your country and study its location on the map of the Atlantic Ocean. Determine why it belongs to the categories indicated on the role card.

3. Elect an ambassador.

4. Discuss the four actions being considered by the conference and decide which you as a country will support and which you will oppose. You can support or oppose as many as your group wishes.

5. Develop a position statement stating the reasons your group supports or opposes each action.

6. The ambassadors will then present the position statement of their country to the entire conference.

7. Countries meet individually to reconsider their position statements, revising them if necessary. They may meet with other groups to lobby for their positions on each action.

At this point countries may develop new actions to be presented to the conference. Any new ones must have the support of one other country.

8. Repeat Steps 4 and 5.

9. A vote is taken. Each country casts one vote either for or against each action.

10. For an action to pass, the vote must be unanimous.

After you have completed this simulation, answer the following questions.

1. Briefly describe each of the eight different categories of countries.

_____

_____

_____

_____

2. Why do you think one requirement of the simulation was that actions had to be passed unanimously?

_____

_____

_____

3. What are the basic interests that countries have in the sea?

_____

_____

_____

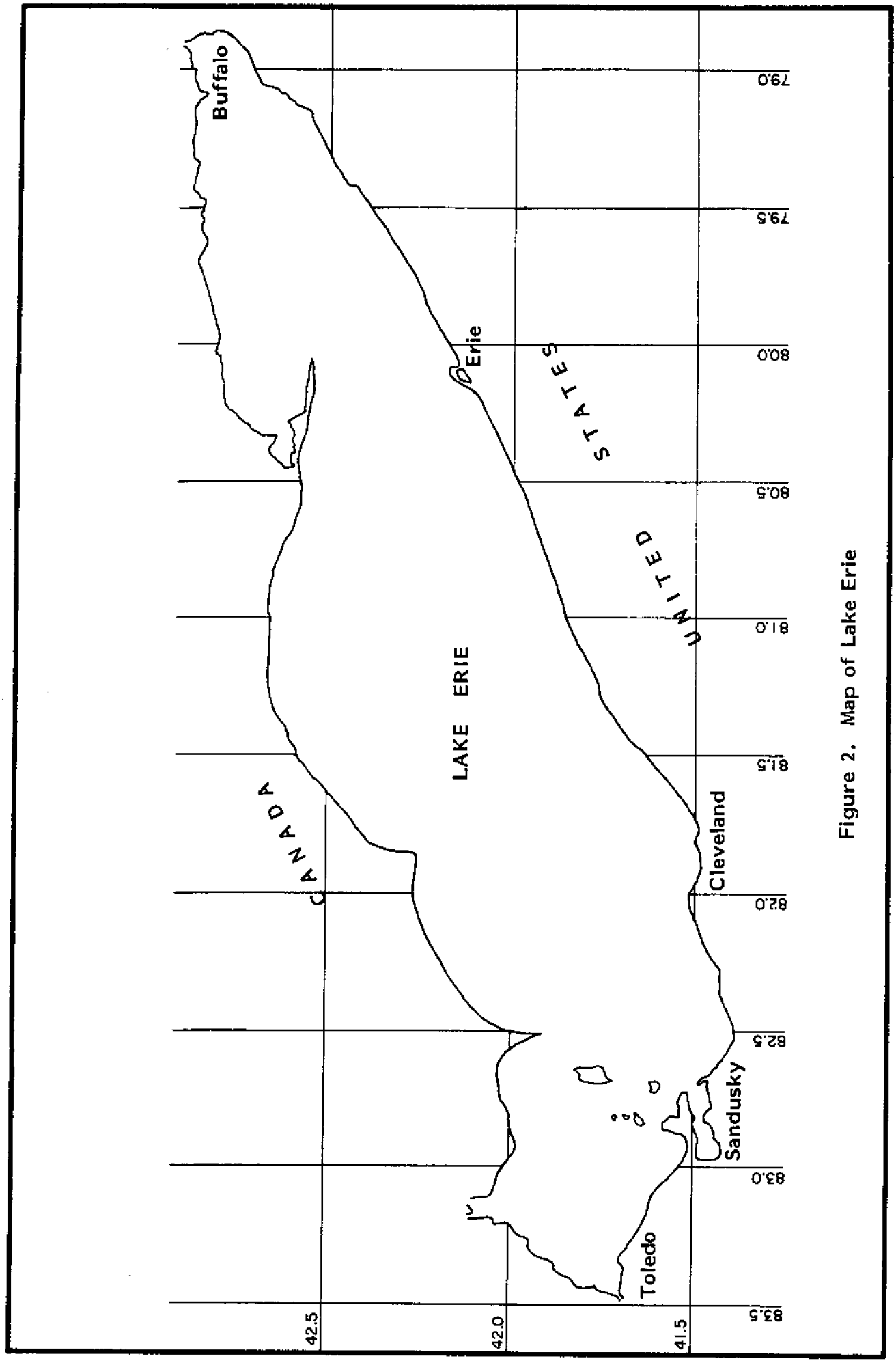



Figure 2. Map of Lake Erie

ACTIVITY C

## HOW ARE BOUNDARIES OVER WATER DETERMINED?

MATERIALS

Compass, ruler, pencil, map of the Atlantic Ocean

The treaties with Great Britain that ended the Revolutionary War defined the boundary between Canada and the United States through Lake Erie as being "through the middle of said Lake until it arrives at the Water Communication between that Lake and Lake Huron." This is a common way of defining territorial boundaries that occur along bodies of water.

1. In Figure 2 (page 9), draw in the boundary between Canada and Ohio as defined by the treaties. Lay your ruler across the Lake, keeping it perpendicular to the north and south shores. Mark the center of the Lake. Do this several times at different places. Then connect each point with a line. This will be your boundary.

2. Compare the position of the boundary that you have drawn with the boundary drawn by other members of your class. How well do they agree?

   _____

   _____

   Where are there differences? _____

   _____

   Why? _____

   _____

At the Treaty of Ghent, following the War of 1812, there was doubt as to what was the middle of the lake. You may have encountered this problem when you tried to determine the middle.

A commission was appointed to settle upon the boundary. Its decision in 1822 provided for the division of the western islands between the two countries. Even then, there was not a definite line between the two countries over water. In 1908, the International Waterways Commission fixed a series of straight lines using permanent objects such as lighthouses as turning points for the lines. This is the boundary on the map provided by your teacher.

3. Compare the position of your boundary with the present boundary as it appears on the map of Lake Erie your teacher has posted in the classroom. Where are there differences?

   _____

   _____

   _____

4. What are some possible reasons for these differences?

_____

_____

_____

Commercial fishing is an important industry on Lake Erie, both for Canada and Ohio. Each country has somewhat different laws that apply to its waters. For a Canadian boat to fish in the waters of Ohio, its captain must get an Ohio permit and follow the laws of the State. The captain must also land his catch in Ohio so that authorities can be assured that Ohio laws have been followed.

In 1978, a Canadian boat was seen illegally fishing in Ohio waters. Law enforcement officers in the Ohio Department of Natural Resources gave chase to the Canadian boat. One officer was able to jump aboard just before it crossed the border into Canada. The Canadians captured the officer and took him into Canada. Later he was returned to Ohio.

There are other locations where there is conflict between Canadian and American interests in the sea. One is the Gulf of Maine. Here there are rich fishing grounds and possible oil deposits under the continental shelf.

5. Locate the Gulf of Maine on your map of the Atlantic Ocean. It is a body of water that lies just off the coast of Maine, between the southern point of Nova Scotia and Cape Cod. Now identify the Gulf in Figure 3 (page 12). Locate Georges Bank and the edge of the continental shelf.

6. Refer to Figure 1. Identify the types of fish that are found near the Gulf of Maine.

The United States enforces a three mile territorial limit, whereas Canada has imposed a twelve mile limit.

7. On Figure 3, draw in the territorial limits of Canada and the United States. Using the map scale, adjust your compass to measure 3 miles on the map. Placing the point of the compass on the coast of the United States draw arcs in the water. Do this many places along the coast of the United States. Then draw a line connecting the arcs. Now adjust the compass to 12 miles and do the same for the Canadian coast.

8. What rights does a country have within its territorial limits?

_____

_____

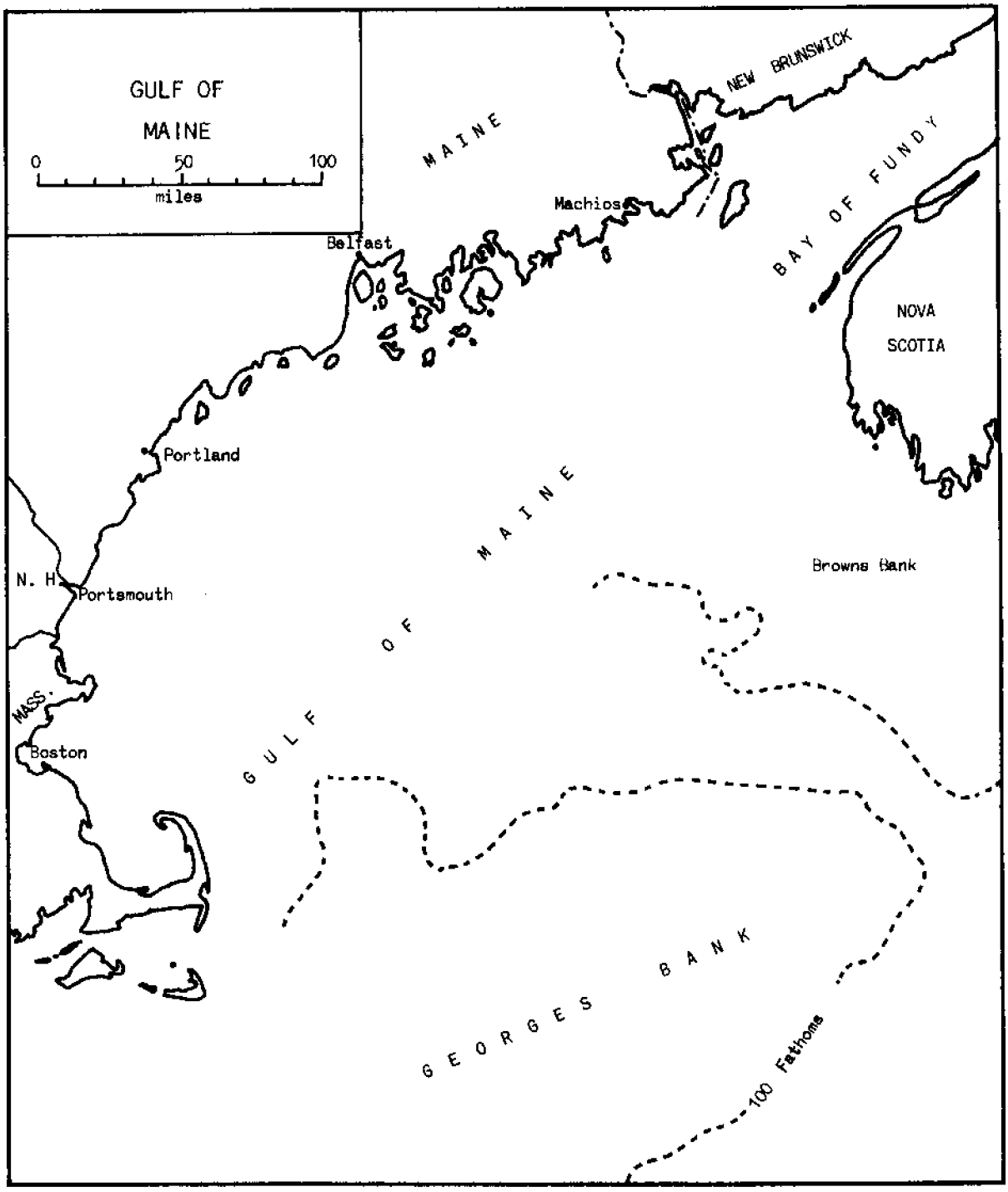



**Figure 3. Gulf of Maine**

9. Is there possible controversy between the United States and Canada because of their territorial limits?

Recently the United States announced a 200-mile economic zone. Canada has also done this.

10. Draw the boundary of the economic zones between the two countries in the Gulf of Maine (in Figure 3). Apply the same method used in step 1 for drawing the international boundary through Lake Erie.

    What difficulties did you have in drawing this boundary?

11. What rights does a nation hold within its economic zone?

12. What effect will this boundary have upon fishing rights in the Gulf of Maine?

13. What effect will it have upon searching for petroleum?

REVIEW QUESTIONS

1. Describe the general characteristics of ocean basins, continental shelves, and straits.

2. Distinguish between developing countries and developed countries. Give several examples of each.

3. Describe the general characteristics of each of the following categories of nations: straits, fishing, maritime, island, limited-shelf, and land-locked.

4. List the major interests that nations have in the sea.

5. What has made it difficult for nations to agree on a law of the sea?

6. Describe possible sources of disagreement between Canada and the United States because of boundaries on lakes and oceans.

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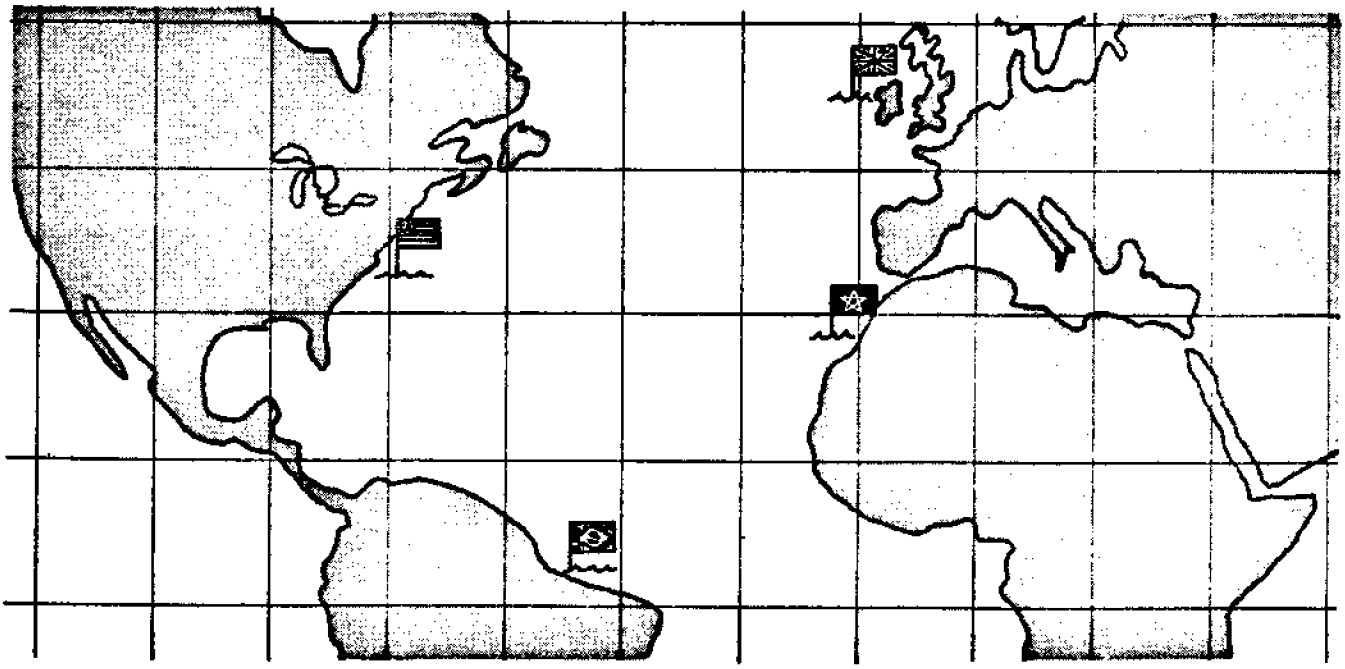

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TEACHER GUIDE

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# IT'S EVERYONE'S SEA: OR IS IT?

**OVERVIEW**

In this investigation students study maps of the Atlantic Ocean and the Atlantic Ocean Floor to locate and describe continental shelves, ocean basins and coastal features. They identify areas of the ocean rich in natural resources and in Activity B they participate in a simulation, learning the sources of the conflict between countries regarding rights to these resources. In Activity C, they learn how international boundaries are determined and investigate Canadian and American interests in the sea.

**PREREQUISITE STUDENT BACKGROUND**

Students should be able to read topographic maps and use map scales.

**MATERIALS**

Activity A

Each lab group of two or three students will need the following materials:

1. Pencil, string and ruler;
2. Map of the Atlantic Ocean and Atlantic Ocean Floor, 1974; available from:

   National Geographic Society
   Washington, D.C. 20036

   for $3.00 plus postage and handling.

Activity B

1. Role card for one of eight countries (included in Appendix).

One map of Lake Erie showing the international boundaries should be provided for the entire class (included in Appendix).

**OBJECTIVES**

When students have completed this investigation they will:

1. Know the general shape and topography of the Atlantic Ocean Basin and of the continental margins that surround it;
2. Be able to identify a country as belonging to one or more of eight categories, because of its relationship to the sea;
3. Know the bases of conflict between nations regarding the use of the seas;
4. Understand the problems associated with passing and enforcing a law of the sea, and;
5. Understand the bases of arguments between Canada and the United States with regard to fishing rights in the Atlantic Ocean and in Lake Erie.

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SUGGESTED APPROACH

Both Activities A and C can be done as individually-paced exercises if sufficient maps are available. They can also be done in two to three member lab groups. Activity B is a simulation with eight different roles. Divide your class into eight equal groups and assign each group one of the roles. Place a card with the name of each country on the table where the students representing that country are seated. This will help other students to identify students with the country they represent.

The film, "Will the Fishing Have to Stop?", part of the NOVA series, would be excellent used following completion of Activity A. The film examines dramatic changes in ocean fish populations due to changes in the ocean environment combined with overfishing. It provides insight into research being conducted in proper management of ocean fish species and the problems inherent in enforcing management practices. Produced in 1975, it is 31 minutes long, in color, and available from Time-Life Films.

ACTIVITY A

In this activity students examine and describe the characteristics and resources of the oceans.

Keywords: continental shelf, pelagic, demersal, topography, fathom

Make certain students begin this activity using the map titled Atlantic Ocean Basin.

1. A continental shelf is the shallow part of the sea floor immediately adjacent to the continent. It generally has a smooth, seaward slope and terminates seaward at an abrupt change in slope. In the Atlantic Ocean the continental shelf along North America is relatively wider than the continental shelves of South America, Africa, and southern Europe. Wide continental shelves are found off the coasts of England, Ireland, Scandinavia and Argentina.

   The average maximum depth of water over the continental shelves is approximately 100 fathoms or 600 feet below sea level, however, students will get a variety of answers based on a few depths indicated on this side of the map.

2. To answer this question, students can use the distance scale given at the edge of page 2 in the Student's Guide. This scale depends on the latitude of the area to be measured. Make sure the students check the approximate latitude of the area on the reverse side of the map titled Atlantic Ocean and use the proper 200 mile scale when measuring distance on the Atlantic Ocean Floor map.

   New York: 140 miles wide
   Mouth of Niger River: 50 miles wide
   South of Reykjavic, Iceland: 60 miles wide

3. Since one fathom equals six feet, the depth of the water is 600 feet.

4. The 100 fathom line marks the seaward edge of the continental shelf.

5. The average depth of the basins appears to be greater than 3,000 fathoms.

6. The width of the Straits of Gibraltar appears to be approximately 20 miles on the map. Actually, the width varies from 8 to 27 miles.

7. The width of the narrowest part of the English Channel appears to be approximately 30 miles across. It is actually only 21 miles across.

8. Lake Erie is 57 miles across at it widest point. When determining the width on this map, any answer between 50-65 miles is acceptable.

9. USSR--Only a small part of Russia is found on the Atlantic Ocean map. Even so, the coastline shown on the map indicates that Russia is connected to the Atlantic Ocean only through many waterways. The Gulf of Finland and the Gulf of Riza lead to the Baltic Sea which leads to the North Sea and finally to the Atlantic. Also, Russia borders the Black Sea which goes into the Aegean Sea, then to the Mediterranean Sea and out to the Atlantic Ocean.

   BOLIVIA--Bolivia, in South America, is a landlocked nation and possesses no coastline.

   NIGERIA--Nigeria's coastline is about 1/5 of its total boundary and is about 500 miles in length. The continental shelf is very narrow.

   ICELAND--Iceland is an island in the northern Atlantic, completely surrounded by 1200 miles of coastline consisting of many bays and inlets. The continental shelf is generally wide, up to 300 miles on the northwestern side of the island.

   YUGOSLAVIA--Yugoslavia borders the Adriatic Sea with about 600 miles of coast, with many islands and harbors.

   SPAIN--Spain is basically a peninsula with 1,500 miles of coastline. The continental shelf is fairly narrow, only 20-30 miles wide.

   BERMUDA ISLANDS--The Bermuda Islands are a chain of more than 300 islands which have no continental shelf. They are situated on the Bermuda Rise, a small chain of sea mounts.

10. Students will have little basis for answering this question. Its purpose is for them to think about the problem of determining the ownership of resources that are under the ocean. Accept almost any answer, but then discuss it with the class. Each country has claimed a 200 mile economic zone in the North Sea. They have reached agreement as to the borders of their zones. Great Britain has the longest sea coast of any of the surrounding countries, therefore, it has claim to the greatest portion of the petroleum found in the North Sea, and to any other fish or mineral resources found there.

11. Both Canada and the United States claim portions of Lake Erie.

12. Shallow water areas tend to be more productive than those over deep oceanic waters. This is because light can penetrate closer to the bottom, thereby enhancing productivity. Also, the major sources of nutrients for life in the oceans are the coastal marshes and rivers. These nutrients will be more concentrated in the shallow coastal areas.

13. One area of conflict is the North Sea between the Scandinavian countries, England, Ireland, Denmark, Germany, the Netherlands, and Russia. Another area of conflict is in the rich fishing waters surrounding Iceland. Many nations may compete with Iceland for its fishing wealth. The Gulf of Maine is a rich fishing area between Canada and the United States. Its close proximity to both countries may create conflicts between fishermen from both countries. Any area where there is a broad continental shelf will provide area for conflict.

14. Students should think about this problem. As the law of the sea now stands, any country has the right to exploit any mineral resources that lie beyond the 200 mile Economic Zone. In effect, this means that only the developed countries such as the United States, which have the industrial and technological base, will be capable of using those resources.

ACTIVITY B — WHO OWNS THE SEA?

PROCEDURE

This activity involves a simulated Law of the Sea Conference between eight countries. Each country represents an interest in the sea based on location and industrial development, and can be categorized accordingly. The class should be divided into eight groups, each group representing one country. Every student should receive a copy of one role card which provides information pertaining to his/her group's country. (Masters are provided in the Appendix.)

The instructions and proposed resolutions for the simulation are complete within the student guide. Two class periods should be allowed to complete this activity. Help students who have difficulty understanding their roles and mediate the order of activities by setting time limits for discussion in groups, calling for ambassador statements to the entire conference, and asking for the vote.

1. Following are the eight categories of nations and descriptions of each of the categories:

STRAITS STATES. These are countries that are located next to a strait, a narrow passage connecting water bodies having access to the sea. There are 100 straits less than 24 miles wide. A 12-mile territorial sea would limit the rights of innocent passage through these straits. Spain is one such state, sitting on the north side of the Straits of Gibraltar.

FISHING STATES. This group includes those states with important coastal fisheries and also those with distant-water fishing fleets. The USSR, USA, Iceland, and Spain can all be considered fishing states. All but the USSR have extensive coastal areas for fishing. The USSR sends its fleet world wide.

ISLAND STATES. If 200-mile Economic Zones are accepted then island states such as Bermuda would command extensive areas of the ocean basin, and the sole right to exploit such areas. Such potential wealth might be in great contrast to the relative size of the country in area and population.

MARITIME STATES. These are states with large fleets of commercial and/or naval vessels, such as USSR, and USA. They have concern about the rights of free passage of their vessels, especially important through straits.

LIMITED SHELF STATES. These are states with narrow and/or short shelves. Therefore, they have limited access to the resources found on shelves. They could consider themselves disadvantaged in access to the resources of the ocean especially under current law.

DEVELOPED STATES. These are countries that have well developed economies and industrial bases. They are the ones, such as USSR, and USA, that have the greatest potential for developing the mineral resources of the sea. They also have a large share of the current wealth of the world.

LANDLOCKED STATES. These are countries, such as Bolivia. Under current law they have no rights to any coastal resources. They would generally be in support of some type of Seabed Authority that would share ocean resources among all countries.

DEVELOPING STATES. These are countries of the "third world." They do not have a strong industrial base. Frequently, they are deficient in natural resources. These countries are concerned that there be a law of the sea that would not favor the developed countries. They may be more in need of the sea's mineral and food resources, yet they do not have the technological capability for obtaining them.

2. It would be very difficult to enforce a law of the sea unless all countries accepted it.

3. The basic interests of most countries in the sea are economic, using its resources, and for defense and transportation.

ACTIVITY C HOW ARE BOUNDARIES OVER WATER DETERMINED?

Keyword: boundary

1. The student can use a ruler to locate the middle of Lake Erie and plot the boundary. Some students may have difficulty plotting the boundary due to uneven coastline and islands.

2. The boundaries will vary depending on the student's ability to locate the middle of the lake. Some variation of boundaries may be seen around the islands. Provide students with a copy of the map of Lake Erie (Appendix B).

3. Answers to this question will vary depending on the position of the individual student's drawings.

4. It is difficult to judge where the middle of the lake should be because of the irregular shoreline, islands, peninsulas, etc.

5-6. Both pelagic and demersal fish are found in the Gulf of Maine.

7. The territorial limit in Canada is 12 miles from the coast. On the map of the Gulf of Maine (Figure 3) 12 miles is equal to approximately ¼ inch. Guide the students to draw the boundary-line along the Canadian border using a compass.

   The United States enforces a 3 mile limit along its coast which is equal to approximately 1/16 inch. Help the students draw the boundary line parallel to the United States' coast.

8. All of the country's laws including customs, sanitary, and financial laws would be enforced in the territorial zone.

9. No, there are no conflicting boundaries between the United States and Canada.

10. Part of the 200 mile economic limits overlap, providing a source of disagreement between the United States and Canada.

11. The country has a right to the resources within the economic zone, i.e., fish, minerals, oil, etc.

12. Since the boundaries overlap, some common boundary line must be agreed upon by Canada and the United States. The area for fishing for each country will be reduced (for commercial and sport fishers) to a smaller area than the 200 mile limit.

13. The economic zone agreement between Canada and the United States must also take into consideration the prospect of petroleum fields. Petroleum is usually located at the seaward margin of the continental shelf. If most of the continental shelf lies within one country's zone, the right to mine the petroleum must be decided upon and considered in the agreement.

REVIEW QUESTIONS

1. The four largest ocean basins (Brazil, Angola, Argentine, and North American) are the deepest points in the Atlantic Ocean, averaging more than 3100 fathoms deep. The continental shelves are the shallowest part of the sea floor immediately adjacent to the continents. They range in width from about 30 miles to 500 miles. The maximum depth of water above the continental shelves is approximately 100 fathoms. Straits are narrow waterways between two large bodies of water.

2. Developing countries are just beginning to modernize. They want to build up industry, business and wealth in their country. Developed countries are highly industrialized. Established laws and business practices affect these countries' interests. Developed countries include the United States, West Germany and Japan. Developing countries include many African and South American countries, Pakistan, and most of Southeast Asia.

3. See #1, Activity B.

4. See #3, Activity B.

5. Differing interests; all countries want to use the benefits of the sea as much as possible. To some, fishing is more important, to others, minerals are more important. Some countries have no access to the ocean, but have interests in how products are shipped, etc.

6. Both countries want fishing, mineral, and shipping rights and both want their country to benefit from the sea and lakes. Each works for its own best interest (See #12 and #13, Activity C).

BACKGROUND INFORMATION



UNITED NATIONS

# A Constitution for the Seas

## *At long last, a treaty sets the rules for the world's waters*

By any measure, it was a monumental achievement. "I've served in nine presidential-appointed offices, but nothing was as tough and complex as this," said Elliot Richardson, the chief U.S. delegate to the Third U.N. Conference on the Law of the Sea. "It was like playing no-limit poker and three-dimensional chess at the same time." Richardson, who served as both Secretary of Defense and Secretary of Health, Education and Welfare during the Nixon Administration, was talking about the negotiations for a Law of the Sea treaty, which came to a virtual conclusion last week after six years of deliberations. The climactic conference, at the Palais des Nations in Geneva, approved a draft of the treaty that is expected to go to the member states for ratification next year.

The 180-page document, with more than 300 articles and eight annexes, definitively covers every conceivable issue dealing with the seas, from the definition of what constitutes an island to the jurisdiction over fish that live in fresh water but spawn in the ocean. Most remarkable of all is the fact that each question was decided by consensus, thus enhancing prospects that the treaty will win approval when it comes up for ratification.

"There is nothing comparable to it in diplomatic history," said Venezuelan Delegate Andrés Aguilar, who recalled that delegates originally expected it would be a labor of a few months. But the complexities, and the delegations, grew. By last week there was a cast of thousands: 460 registered delegates from 156 participating countries and 24 nongovernmental organizations—the Sierra Club and the Friends of the Earth, for example—and back-up staff of 2,000. The result, said Canada's J. Alan Beesley, chairman of the drafting committee, is "the most significant achievement in international relations since the U.N. charter. It is indeed a constitution for the seas."

The treaty, in effect, consecrates the dictum laid down by Dutch Jurist Hugo Grotius in 1609 that the oceans of the world belong to everyone. The problem, says Richardson, was that "the old Grotius order was breaking down." When negotiations first began, 50 countries had extended the traditional three-mile territorial limit to twelve miles, and many had pushed it to 200 miles. Bickering over fishing rights had even flared into gun battles. Freedom of passage through strategic straits was jeopardized. The discovery of mineral nodules on the seabed raised questions never defined in international law. The draft treaty attempts to settle these questions once and for all. Its main conclusions:

**BOUNDARIES.** The treaty recognizes the twelve-mile territorial limit, and also acknowledges a 200-mile "exclusive economic zone" for each coastal nation. Coastal states have jurisdiction over marine resources in their economic zones and on the continental shelves beyond 200 miles.

**OCEAN TRANSIT.** The treaty reaffirms the right of passage on the high seas, as well as within the twelve-mile limits under certain conditions. It also guarantees unimpeded transit through straits used for international navigation for all ships.

**SEABED MINING.** The treaty sets up a complicated system for both private and international exploitation of the seabed minerals. The mining issue was a sticking point between the developing nations and those industrialized countries that have a technological advantage for such exploration. The treaty provides for a U.N.-chartered mining company, called the Enterprise, to share in exploration and mining. Revenues will be reallocated among developing countries.

**FISHING.** The treaty awards coastal states absolute control over the fish in their economic zones and the right to sell fishing interests to other nations as they choose.

**MARINE ENVIRONMENT.** The treaty paves the way for environmental safeguards to protect the seas from contamination, even if it originates in polluted inland waterways. Pollution by ships will be prohibited, and fines levied on violators.

**JURISDICTIONAL AGENCIES.** The treaty provides for the establishment of two governing units: 1) the International Seabed Authority, which will control and manage the exploration and exploitation of deep seabed resources. In addition to the Enterprise, it will contain a policymaking Assembly and a 36-member executive Council that will make sure the policies comply with the treaty's provisions; 2) a supranational Law of the Sea Tribunal, which will arbitrate disputes.

The long negotiations produced shifting and sometimes curious alignments between nations. The superpowers' mutual interest in preserving maneuverability for their navies kept the U.S. and the Soviet Union cooperating most of the time. They clashed when U.S. negotiators tried to protect the fish stocks that straddle the 200-mile American economic zone from Soviet trawlers that "vacuum" the fish beds. The U.S. apparently succeeded in gaining some protection.

The kaleidoscope of shifting interests made it impossible to sort out the "winners" and "losers." The major industrialized states managed to retain considerable control over underwater oil and gas exploration and most seabed mining, but only at a price. They had to commit themselves to a systematic transfer of technology, as well as compensatory payments to the less developed countries. In some of these provisions, in fact, many observers thought they saw the first glimmerings of the "new economic order" for which many Third World countries have long been clamoring. *—By Marguerite Johnson. Reported by Bruce van Voorst/Geneva*

EVALUATION ITEMS

1. Manganese nodules are found

   a. on the continental shelves.
   b. in straits between two larger bodies of water.
* c. in ocean basins.
   d. near islands.

2. What rights does an Economic Zone give a nation?

   a. Enforcement of customs, sanitation, and financial laws of the country.
   b. Jurisdiction over pipes and cables laid by other nations.
   c. Authority to control pollution from ships.
* d. Exclusive rights to resources in water and sea bed.

3. Where would you find major fishing areas of the world?

   a. Above the deep ocean basins.
* b. Over wide continental shelves.
   c. Along the Mid-Atlantic ridge.
   d. In straits between two larger bodies of water.

4. What right(s) does the right of Innocent Passage include?

* a. Freedom of peaceful navigation through foreign territory.
   b. Freedom of fishing within foreign territory.
   c. Freedom of mining within foreign territory.
   d. All of the above

5. Which of the following is classified as a land-locked state?

   a. Yugoslavia
   b. USSR
* c. Bolivia
   d. Nigeria

6. Which of the following is a developing state?

   a. Iceland
* b. Nigeria
   c. United States
   d. USSR

7. Which of the following is a straits state?

* a. Spain
   b. Bermuda
   c. Iceland
   d. Nigeria

8. Which of the following countries would be most interested in the establishment of an International Seabed Authority?

   a. United States
* b. Bolivia
   c. Bermuda
   d. USSR

9. Which of the following is found on continental shelves?

   a. Manganese nodules
   b. Forests
* c. Petroleum
   d. Alcohol

10. Disputes between Canada and the United States have arisen over fishing rights and rights for petroleum exploration. Most of these disputes involve:

* a. The Gulf of Maine.
   b. Lake Erie.
   c. Lake Superior.
   d. Puget Sound.

## APPENDIX

A. Following are role cards for United States of America, Union of Soviet Socialist Republics, Spain, Yugoslavia, Nigeria, Iceland, Bolivia, Bermuda.

B. Map of Lake Erie.

# THE UNITED STATES OF AMERICA

The United States of America has been nicknamed "the melting pot of the world" because of the wide variety of nationalities, religions, climates, natural resources, agricultural and manufacturing products. Education from age 6 to 16 is compulsory. Most Americans graduate from high school or vocational school and many attend colleges and universities. In 1976, the average per capita income was $7,890; one of the highest in the world.

AREA: 3,615,122 square miles (4th largest country in the world)

POPULATION: 220,806,000 (4th highest population in the world)

The current goals of the armed forces are: to deter an all-out strategic nuclear war and to be ready for limited nuclear or non-nuclear conflicts. To accomplish these goals about 2,000,000 people are enlisted in the Army, Navy, Air Force, Marine Corps, and Coast Guard and the defense budget is over $100,000,000,000 (about 7% of the Gross National Product). The Navy employs about 500,000 men and women at American naval bases and also at bases located in Newfoundland, Bermuda, Bahamas, Jamaica, St. Lucia, Trinidad, Antigua and British Guyana. Shore activities of the Navy include eight shipyards, 35 air stations and facilities, two amphibious bases, two submarine bases and 15 naval stations and facilities.

Seventy-five percent of the population lives in metropolitan areas situated along coastlines or major waterways. The United States is the world's leading manufacturing country. Machinery, food products, transportation equipment, chemicals, electric and electronic equipment, fabricated metal products, primary metals, printed publications, paper products and instruments are the leading products.

Twenty-five percent of the population lives in rural areas. There, farming is the leading occupation. The United States has fertile soils. The use of modern machines and technology has greatly improved the quantity and quality of farm products. Beef cattle, corn, dairy products, eggs, hogs, poultry, soy beans, tobacco and wheat are produced in great quantities.

The United States has many natural resources. Water supplies provide hydroelectric power, irrigation for agriculture, and transportation for industrial products. Leading minerals include coal, iron ore, lead, limestone, natural gas, oil, phosphorus, potash, uranium and zinc. Due to low or absent supplies, antimony, asbestos, bauxite, chromite, cobalt, copper, diamonds, iron ore, magnesium, mica, nickel, oil, tin, titanium, and uranium must be imported. Because of its high rate of energy consumption, the United States must now import almost half of its oil, most of which comes from overseas.

The imported products come from many countries. The United States trades with every nation in the world. Over 800 vessels, carrying 1,000 gross tons or more make up the American merchant fleet, however, 90% of America's shipping is done with vessels that are registered with foreign governments.

The total fish catch along the Atlantic and Pacific Oceans amounts to $1,353 million. Two and one-half million tons of fish and other seafood are caught annually. The chief fishing states include Florida, Massachusetts, Maine, North Carolina and Oregon. Cod, haddock, herring and mackerel are caught along the New England Coast. Menhaden fish and shrimp are the major fish catches in the South Atlantic and Gulf Coast, and salmon and tuna are caught along the Pacific Coast.

The United States falls into several categories of states; it is next to several straits including the Bering Strait, it is a major fishing nation and maritime nation, and it is developed.

# UNION OF SOVIET SOCIALIST REPUBLIC (USSR)
# "RUSSIA"

Russia is the largest country in the world. It borders three major oceans; Atlantic, Pacific and Artic Oceans. However, its only ports lie in high northern latitudes and are, therefore, closed by ice during part of the year.

Russia was the first country to develop a communist government and today has alliances with most other communist countries.

A governing council rules over the 15 republics that make up the USSR. Each is almost like a separate country, since languages, customs and traditions vary greatly among the republics.

AREA: 8,649,500 square miles (3 times larger than the United States, excluding Alaska)

POPULATION: 266,403,000 (Somewhat larger than the United States)

It has the largest armed forces in the world, employing 3,375,000 persons. The defense budget is $95,800,000,000--approximately 9% of the Gross National Product. Russia's navy is steadily expanding and progressively modernizing with over 500,000 officers and men. Naval ports are located in Nikolaiev and Sevastopol on the Black Sea, Molotovsk on the White Sea, Komsomolsk on the Amur River, and Leningrad.

Russia is a developed country with an excellent educational system enrolling 55 million full-time students. Sixty-four percent of the population lives in cities and is employed in business and industry. Thirty-six percent of the Russian people live in the country, most on farms. A few farms are privately owned and operated, while most are state owned and operated by 5 to 10 families. The per capita income is approximately $4,000 (U.S. dollars).

Russia produces the following agricultural products: barley, corn, flax, rye, cotton, oats, potatoes, sugar beets and livestock. Russia's leading natural resources are bauxite, coal, copper, gold, iron ore, lead, manganese, magnesium, nickel, salt, tungsten, zinc, platinum, natural gas and forestry products. Russia is the largest oil producing nation in the world. Besides oil, hydroelectric power and coal are the major energy sources. It also has one of the world's largest fishing fleets. Fish provide a major source of protein in the Russian diet.

Russia exports iron, steel, lumber, machinery, and petroleum. Since Russia is almost self-sufficient in most materials, only a few goods are imported--industrial equipment and consumer goods. Russia's leading trading partners are the European nations; primarily Czechoslovakia, Austria, Italy, East and West Germany, Poland, Bulgaria, Hungary and Romania. Over 7,000 vessels make up the Russian merchant fleet. The most important merchant sea ports are at Vostochny in far eastern Russia, Grigorevsky on the Black Sea, Ventspils at Lativa and Murmansk and Archangel, used for Arctic traffic.

Russia also is in several categories; it is next to several straits, including the Bering Strait; it is a fishing state with a world-wide fleet; a maritime state, and developed.

# SPAIN

Spain shares 5/6 of the Iberian Peninsula with Portugal. It boasts 3,340 miles of coastlines bordering both the Mediterranean Sea to the south and the Atlantic Ocean to the north and west. The climate is sunny and dry. The high central plateau region has hot summers and cold winters. Along the coast, climatic conditions are not as severe.

AREA: 194,883 square miles (slightly larger than California)

POPULATION: 35.7 million (about 50% larger than California)

Spain has approximately 280,000 men in the armed forces. The Spanish fleet is undergoing modernization.

It has grown to become a modern, industrial country. Today, half of Spain's population lives in cities, dwelling mostly in apartments. The per capita income is $2,920 U.S. dollars. Most of the working force is employed in industry, farming, or fishing. Spain is one of the world's leading producers of automobiles and ships. In addition, cement, chemical products, clothing, shoes, cork products and steel are also major manufactured items. Most of the industrial and energy resources must be imported since Spain lacks raw materials. A few minerals such as coal, lignite, iron ore, zinc ore and lead are mined for industrial use or exported.

Farm production in most regions is low due to poor soil, dry climate and inferior farming techniques. Although livestock, cereals, vegetables, grapes, oranges, tobacco, honey and sugar cane are major farm products, much food must still be imported.

Spain is a leading fishing nation catching over 1.4 million metric tons of fish each year, chiefly anchovies, codfish, hake, sardines and tuna. The Spanish fishing fleet includes 16,853 vessels. The fish come primarily from the waters off the northern coast of Spain. The merchant shipping fleet includes 3,040 vessels carrying over 3 million passengers and 49 million tons of cargo to other parts of the world annually.

Because of its position at the mouth of the Mediterranean, Spain would be considered a "straits" state. It is also a fishing nation and is becoming a developed state.

# YUGOSLAVIA

The Socialist Federal Republic of Yugoslavia borders the Adriatic Sea in southeastern Europe. A communist country, it is influenced by the USSR. Its population is a mixture of many nationality groups with different cultures, religions, and languages. Much of the area is mountainous. Along the coast, over 700 islands and the indented coastline provide many excellent natural harbors. In northcentral Yugoslavia, the Danube River runs through the Pannonian Plains region which is flat with rich soils, making this region the chief farming area. The climate along the coast is mild; however, more extreme climatic conditions occur inland.

AREA: 98,766 square miles (a little larger than Oregon)

POPULATION: 19,958,000 (ten times greater than Oregon)

The Yugoslavian armed forces consists of about 250,000 men, 27,000 of which are in the navy. The defense budget is $1,300,000,000 or 8.5% of the Gross National Product. This is a larger percentage than many other countries.

The Yugoslavian standard of living is high. Most families own a car, television set and other luxury items. They travel freely to other countries. In most cases, both the husband and wife hold full-time jobs. The per capita income is $1,680 (U.S. dollars).

Farmland covers 58% of the country providing high yields of corn, sugar beets, wheat, barley, oats, potatoes, tobacco, grapes, olives, plums, cattle and sheep. Forests cover 35% of the land and forest products are a major export.

Mineral resources include bauxite, chromite, coal, copper, iron, lead, mercury, natural gas, petroleum and zinc. Yugoslavia trades mostly with Italy, East and West Germany, the Soviet Union and the United States. The major exports are forest products, livestock, machinery, metals, plastics and textiles. The chief imports include coal, crude oil, machinery, motor vehicles and textiles. The Yugoslavian shipping fleet consists of 432 vessels. Half of Yugoslavia's energy comes from hydroelectric power. Coal is also widely used and a new nuclear power plant is near completion.

The principal product from the Adriatic Sea is fish. Yugoslavia owns more than 200 motor fishing vessels and over 1,700 sailing and rowing fishing vessels. Greater than 35,000 tons of saltwater fish are caught annually.

Yugoslavia has limited shelf area and is on the verge of being a developed country.

# NIGERIA

Nigeria is located on the west coast of Africa, along the Gulf of Guinea, just north of the equator. Topography in Nigeria varies greatly. It has hot, rainy swamplands; dry, sandy deserts; grassy plains; tropical forests; high plateaus; and rocky mountains.

AREA: 356,669 square miles (the size of Texas and Colorado combined)

POPULATION: 69,667,000 (four times the combined population of Texas and Colorado)

Over 200,000 persons serve in the Nigerian Army. Nigeria also operates a small navy (4,500 persons), an air force and a federal police force.

Three-fourths of the Nigerian people live in rural areas earning their living in farming, fishing or herding. The per capita income is $380 (U.S. dollars). The people live in small villages in huts made of grass and dried mud. Over 250 languages are spoken.

Nigeria's economy is based on farming and mining. Nigeria ranks among the world's leading producers of cacao, palm oil and palm kernels, peanuts and rubber. Other important crops include beans, cassava, corn, millet, rice and yams. Farmers also raise goats, poultry, sheep and cattle.

The oil industry is the fastest growing industry in Nigeria. Most of the oil fields are operated by foreign companies. Many of the oil wells are located on the Nigerian continental shelf in the Gulf of Guinea. Nigeria is a member of OPEC (Organization of Petroleum Exporting Countries). Other minerals are coal, columbite, gold, iron ore, lead, limestone, natural gas, tin, and zinc.

The principal shipping ports include Lagos, Port Harcourt, Warri and Calabar. Ninety-three percent of what Nigeria exports is oil. It also exports cacao beans, palm products, peanuts, rubber, timber and tin. Important items that must be imported include cement, chemical products, food products, machinery, manufactured goods and textiles. Nigeria's most important trading partners are Great Britain, the Netherlands, West Germany and the United States.

Nigeria has a limited continental shelf and is a developing country.

# ICELAND

Iceland is a republic located just below the Arctic Circle in the northern Atlantic Ocean. Because of its northern location, it has a relatively cool climate. A good part of the country is covered by an icecap. There is a great deal of volcanic and earthquake activity. Much of its energy comes from hot water that is found at and below the surface.

AREA: 103,000 square miles (about as big as Kentucky)

POPULATION: 210,000 (3/5 amount of people as Kentucky)

Iceland has no army or navy; however, the United States has troops stationed there. Iceland does have a small coast guard which patrols the fishing area surrounding the island. In 1975, Iceland announced an extension of its fishing rights to 200 miles to protect the fishing stocks and its fishing industry.

Most Icelanders live in coastal towns, making a living by fishing or working in fish processing plants. The per capita income is $6,000 (U.S. dollars). Fifteen percent of the Icelanders are farmers, making a living in the fertile lowlands along the southern and western coasts. The major agricultural products are hay, wool, meat, skins and dairy products.

The most important industry in Iceland is fishing and fish processing. In 1977, its total fish catch was 1,373,954 tons, primarily cod, haddock, and herring. Most of the fish are dried, salted or frozen and exported to other countries. Iceland trades mainly with Denmark, Great Britain, Norway, Russia, Spain, Sweden, Switzerland, East and West Germany and the United States. Fish and whale products are Iceland's greatest exports. A small merchant marine consists of six steam powered vessels and 987 smaller motor vessels.

Iceland is an island state, a fishing state, and developed.

# BOLIVIA

The Republic of Bolivia located in South America, has been a landlocked country since 1879 when its western neighbor, Chile, seized the Bolivian coastal province, Atacama, in a dispute over nitrate deposits along the Pacific Coast. This isolated country lies between the Amazon jungle and the Andes mountains. It has high plains, plateaus, mountains, and lowlands. The average temperature varies from 45° to 75° F depending on the region of the country.

Bolivia is often called a "Beggar sitting on a throne of gold." This poor country has large mineral, forest and water resources, yet lacks the capability for using these resources.

AREA: 424,165 square miles (about the size of California and Texas together)

POPULATION: 6.5 million (one-half the population of Texas)

Bolivia employs 24,000 people in the armed forces.

Two main social classes exist in Bolivia; "those who have much" and "those who have little." Basically, the majority of Indians and some Mestizos (mixed Indian and White) are poor farmers, miners and industrial workers. They live in adobe houses and eat corn, cereal and potatoes as major portions of their diet. The minority Whites and Mestizos dwell in Spanish-style homes in the large cities and primarily operate the businesses. The per capita income is about $360 (U.S. dollars).

Farming employs over one-half of the Bolivian workers, although only 2% of the land is cultivated. Lack of funds to buy machinery, primitive farming methods and unwillingness to move to richer lowlands prevent larger crop yield. Beef, cocoa, coffee, corn, cotton, rice, hides, mutton and sugar are the chief products.

Although poor in many aspects, Bolivia is rich in minerals. Thirteen percent of the world's tin is mined in Bolivia. Other valuable minerals include antimony, bismuth, copper, gold, lead, tungsten, silver and zinc. Bolivia is also self-sufficient in oil production. Vast forests supply quebracho wood (used in tanning and drying) and rubber. Waterfalls and rapids are possible sources of hydroelectric power.

Since Bolivia is landlocked, trade with other countries is limited. However, surrounding countries allow Bolivia the use of some ports. Arica and Antofagasto, ports in Chile, Mollendo-Matarani in Peru and La Quiaca on the Amazon are the most-used import-export shipping centers for Bolivia. Of the revenue from exports, 55% comes from tin and other exported minerals, and 30% from gas and oil. Bolivia imports cotton, food, machinery, motor vehicles, timber and wool from the United States and other South American countries. Railroads connect harbors on the Pacific to major cities in Bolivia making foreign trade easier.

Bolivia is a landlocked state and one of the developing states.

# BERMUDA

The British dependency, Bermuda, consists of more than 300 coral islands in the North Atlantic Ocean. This favorite resort country is known for its warm, sunny climate, winding roads, palm trees, colorful flowers and shining beaches. The only source of fresh water in Bermuda is rain water caught on roofs of buildings and stored in tanks outside. Small fish are sometimes put in the tanks to keep them free of mosquito larvae.

AREA: 21 square miles (1/8th the size of Columbus, Ohio)

POPULATION: 60,000 people (1/9th the population of Columbus, Ohio)

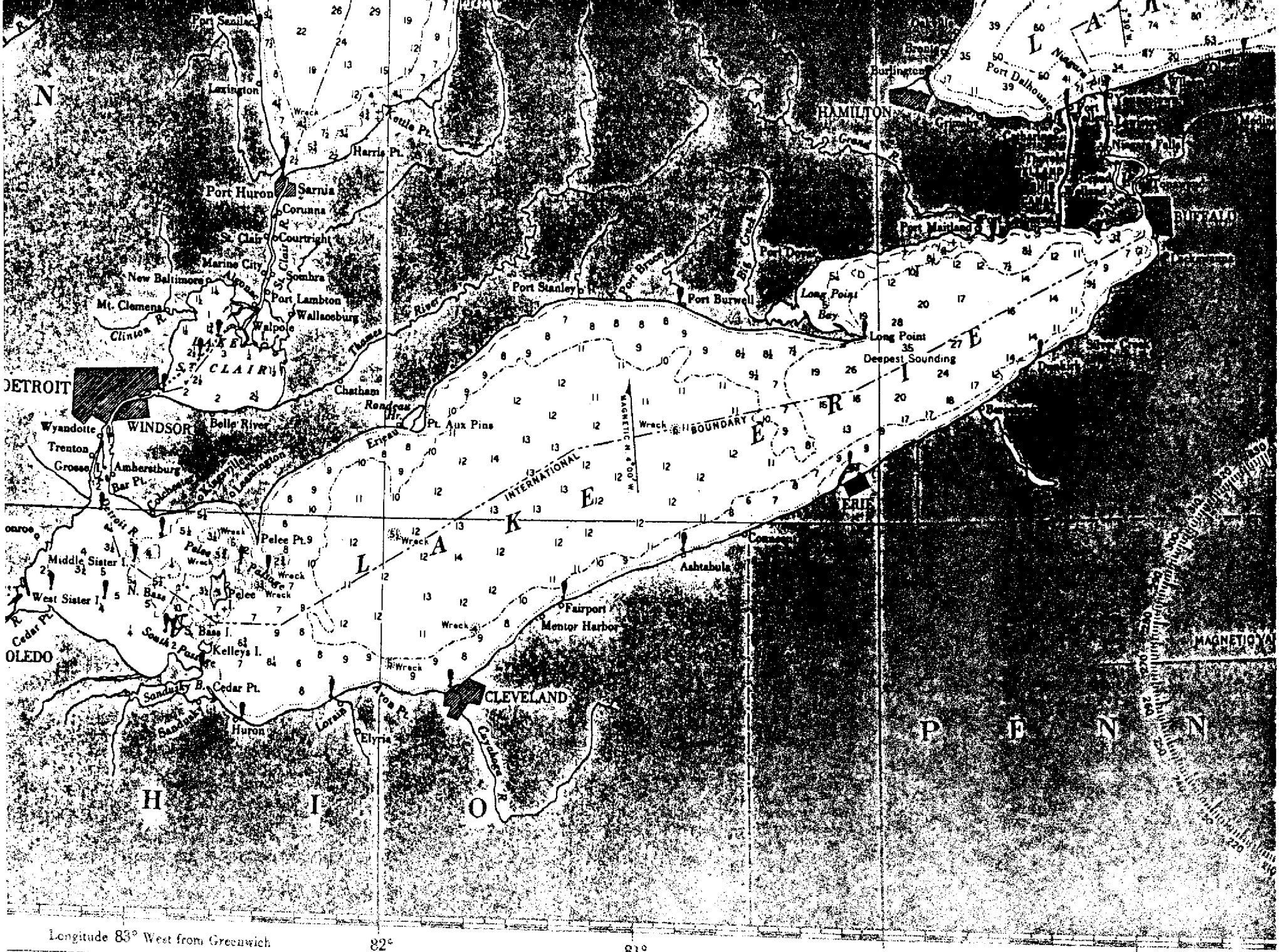
For defense, Bermuda relies primarily on Britain; however, the Bermuda Regiment defense-force employs 350 men. Since Bermuda occupies a very strategic military location the United States, in 1941, leased 2.3 square miles of land for naval and air force bases.

Only 20 of the 300 Bermudan Islands are inhabited. On these islands, hotels, beaches, and recreational resources attract over 500,000 tourists each year. Tourism represents 44% of the Gross National Product. It has almost no natural resources and therefore must import all energy and minerals.

Farming and fishing employ 1.5% of the work force in Bermuda. Bananas, citrus fruits, lilies, potatoes, green vegetables, eggs and milk are the major farm products.

Bermuda imports three times more goods than it exports in its 200 vessel shipping fleet. Four-fifths of its food must be imported. Britain, the Netherlands and the United States are Bermuda's biggest customers. In addition, Bermuda re-exports many goods due to ships stopping in major harbors such as Hamilton and St. George for medical, fuel and other ship supplies.

Bermuda is a developing island state.

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