



NOAA FISHERIES

Grade Level

9-12

Materials

- Computers with Internet access
- Managing Fish and Fishing in America's Oceans student handout
- Five Fish Desperate for Healthy Habitat student handout
- Hear My Voice! student handout

Audio/Visual Materials

- Computers with Internet access
- Overhead or white board

Teaching Time

Three or four 45-minute class periods

Seating Arrangement

Flexible

Key Words

- Critical habitat
- Fisheries management
- Fishery Management Plan (FMP)
- Optimal yield
- Overfished
- Overfishing
- Magnuson-Stevens Fishery Conservation and Management Act
- Marine Policy
- Sustainable Fisheries Act (SFA)

Hear My Voice: Marine Policy

For use with Fish Watch at www.fishwatch.gov



Focus

- Magnuson Stevens Fishery Management and Conservation Act

Focus Questions

- How does the Magnuson-Stevens Act affect fishery management?
- What is essential fish habitat?

Learning Objectives

- Describe the main components of the Magnuson-Stevens Act and its purpose
- Understand the role of essential fish habitats have in healthy fish populations

Background Information

The ocean covers 71 percent of the Earth's surface and contains 97 percent of the planet's water, yet more than 95 percent of the underwater world remains unexplored. The ocean supports the life of nearly 50 percent of all species on Earth and helps sustain that life providing 20 percent of the animal protein and five percent of the total protein in the human diet. One of every six jobs in the United States is marine-related and over one-third of the U.S. Gross National Product originates in coastal areas. The ocean is key to transportation,

National Science Education Standards

Grades 9-12

Content Standard C: Life Science

- Interdependence of organisms

Content Standard F: Science in Personal and Social Perspectives

- Population growth
- Natural resources
- Natural and human-induced challenges
- Science and technology in local, national and global challenges

Content Standard G: History and Nature of Science

- Nature of scientific knowledge
- Historical perspectives

Ocean Literacy Essential Principles

Essential Principle 1

The earth has one big ocean with many features.

Fundamental Concept h

Although the ocean is large, it is finite and resources are limited.

Essential Principle 6

The ocean and humans are inextricably interconnected.

Fundamental Concept b

From the ocean we get foods, medicines, and mineral and energy resources. In addition, it provides jobs, supports our economy, serves as a highway for transportation of goods and people, and plays a role in national security.

recreation, and its resources may hold the cures to many diseases. Because the oceans play such an integral role in sustaining life on Earth, protecting this important resource is vital.

Introduction to the Magnuson-Stevens Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the principal law governing marine fisheries in the United States. It was originally adopted to extend control of U.S. waters to 200 nautical miles in the ocean; to phase out foreign fishing activities within this zone; to establish the basic fisheries management system in the U.S.; to prevent overfishing, especially by foreign fleets; to allow overfished stocks to recover; and to conserve and manage fishery resources. The Act is named after the late Senators Warren Magnuson of Washington and Ted Stevens of Alaska. Congress passed the original Magnuson Act in 1976. It has since been amended several times, most recently in 2006. Among other things, the Act explains the role of regional fishery management councils and describes their functions and operating procedures. The Act includes national standards for management and outlines the contents of fishery management plans. In addition, it gives the Secretary of Commerce power to review, approve, and implement fishery management plans and other recommendations developed by the councils. NOAA Fisheries Service (under the Department of Commerce) is charged with stewardship of the nation's living marine resources. With input from the regional councils and stakeholder groups, they provide guidance for applying the National Standards of the Act.

Revisions to the Act

In 1996, Congress passed the Sustainable Fisheries Act (SFA), which revised the Magnuson Act and reauthorized it through 1999. This revision brought new requirements to prevent overfishing and rebuild overfished fisheries. The law now required that each fishery management plan (FMP) specify objective and measurable criteria for determining when a stock is overfished or when overfishing is occurring, and to establish measures for rebuilding the stock. The SFA also added several new definitions, including definitions for "overfishing" and "overfished," and for fishing communities.

The SFA also added three new National Standards to address fishing vessel safety, fishing communities, and bycatch. Several existing standards were revised. The MSA now contains ten National Standards for fishery conservation and management, with which all FMPs must comply.

In late 2006, Congress revised and reauthorized the Act again. This revision (called "Fishery Conservation and Management Amendments of 2006") did not add any National Standards, but made a number of changes related to establishment of annual catch limits, function of the Scientific and Statistical Committee, the environmental review (NEPA) process, rebuilding provisions, limited access privilege programs, and other areas.

The Magnuson Act is complemented by other federal and state laws, including the Marine Mammal Protection Act, the Endangered Species Act, the Coastal

Fundamental Concept b

From the ocean we get foods, medicines, and mineral and energy resources. In addition, it provides jobs, supports our economy, serves as a highway for transportation of goods and people, and plays a role in national security.

Fundamental Concept e

Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution and physical modifications (changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.

Fundamental Concept g

Everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean.

Essential Principle 7

The ocean is largely unexplored.

Fundamental Concept c

Over the past 40 years, use of ocean resources has increased significantly; therefore, the future sustainability of ocean resources depends on our understanding of those resources and their potential and limitations.

Zone Management Act, and the National Marine Sanctuaries Act. International agreements and organizations, such as the International Convention for the Conservation of Atlantic Tunas, Inter-American Tropical Tuna Commission, and the United Nation’s Code of Conduct for Responsible Fisheries, also play a role in shaping management of U.S. fisheries.

National Standards of the Magnuson-Stevens Act (A Summary)

- Conservation and management measures shall:
- Prevent overfishing while achieving optimum yield.
- Be based upon the best scientific information available.
- Manage individual stocks as a unit throughout their range, to the extent practicable; interrelated stocks shall be managed as a unit or in close coordination.
- Not discriminate between residents of different states; any allocation of privileges must be fair and equitable.
- Where practicable, promote efficiency, except that no such measure shall have economic allocation as its sole purpose.
- Take into account and allow for variations among and contingencies in fisheries, fishery resources, and catches.
- Minimize costs and avoid duplications, where practicable.
- Take into account the importance of fishery resources to fishing communities to provide for the sustained participation of, and minimize adverse impacts to, such communities (consistent with conservation requirements).
- Minimize bycatch or mortality from bycatch.
- Promote safety of human life at sea.

Sources:

<http://www.noaa.gov/ocean.html>

<http://www.pcouncil.org/resources/applicable-laws/magnuson-stevens-act/>

Learning Procedure

1. Understanding human uses of the ocean is an essential component to successful marine management. Begin this lesson by writing “Human Uses of the Ocean” on the board or overhead. Conduct a “Think, Pair, Share” activity: Have students think quietly about “Human Uses of the Ocean.” Then have students share their ideas with a partner. Have each pair share their answers with the class. As they share, list ideas on the board/overhead. Ideas that students may touch on include: recreation, transportation, food, valuable minerals, jewelry.
2. Ask students if they are aware of any laws that protect our fisheries. Introduce students to the Magnuson-Stevens Act. Have students access the NOAA Fisheries Service MSA site: www.nmfs.noaa.gov/msa2007/index.html. Tell them that they will be focusing on the Magnuson-Stevens Act, what it has done to protect the fisheries and how we can do more in the future to ensure that this effort continues. Allow students time to read the handout, “MSA 35 Years Fact Sheet,” while creating a timeline on the board. Ask for student volunteers to fill in the timeline.

Dates that should be included are:

- 1976- Congress passes the Fishery Conservation and Management Act to eliminate rampant foreign fishing off the US coast and to promote the domestic fishing industry.
- 1996- Sustainable Fisheries Act passed and changes the focus from promoting fishing to conserving sustainable fish populations.
- 2006- MSA Reauthorized in order to require fisheries managers to abide by the recommendations of scientists in establishing annual catch limits that do not allow overfishing.
- 2010- deadline for catch limits for those fish populations experiencing overfishing
- 2011- deadline to catch limits for all other fish populations

If not included in the timeline, ask students what happened after 1976 to the fishing populations. Although the MSA succeeded in eliminating rampant foreign fishing off the US coast and promoting the domestic fishing industry, it failed to protect the fish populations and led to the collapse of commercially important fish populations, like New England Cod.

Ask students about future concerns for our ocean. Point out on the timeline that we did not have any protection for the ocean prior to 1976. Allow students time to brainstorm the future needs that will need to be taken into consideration for healthy fish populations. Student responses should include the need for healthy habitats.

3. Direct students to the following website and allow them time to read: www.habitat.noaa.gov/ourwork/efh.html in order to learn about Essential Fish Habitats (EFH). The Magnuson-Stevens Act requires all Fishery Management Plans (FMPs) to establish EFH to be identified and described for the fishery, adverse fishing impacts on EFH be minimized to the extent practicable, and other actions to conserve and enhance EFH be identified. Then direct students to this website: www.nmfs.noaa.gov/stories/2012/07/07_24_12habitat_fish_list.html in order to read about Five Fish Desperate for Healthy Habitat.

Divide students up into five groups, distribute the Five Fish Desperate for Healthy Habitat student worksheet and assign each group a fish of interest (Atlantic Salmon, Atlantic Sturgeon, Golden Tilefish, Chinook Salmon or Steelhead Trout). Each group must research their assigned fish and be able to report their information back to the class. Allow time for student research. Make sure the students look at the Related Links section on www.fishwatch.gov for their species for additional sources of information.

4. Allow time for each group to report back to the class. Ask students to think about the future of their assigned fish stock. Could we be doing more to protect these habitats? List ways to protect the habitat and the future of the fish stock on the board.

5. How can we make our voices known? How can we affect fisheries management policies? Students should mention the idea to write to their Congressmen. As a class, discuss that it is the duty of all Senators and Representatives to take into consideration their constituents' views. Use the

links below to find the addresses for the Senators and Representatives in your district. www.govtrack.us/congress/members

6. Distribute the Hear My Voice! student handout. Explain to students that this is their chance to take action for the future of their ocean. Allow students time to research in order to write a compelling letter to their Senator or Representative. Direct students to the following websites if further information is needed:

NOAA's Habitat Conservation: Habitat Protection
www.habitat.noaa.gov/protection/efh/index.html

NOAA's Coral Reef Conservation Program: Threats
coralreef.noaa.gov/threats/

NOAA's Coral Reef Program: Fisheries
coralreef.noaa.gov/aboutcorals/values/fisheries/

NOAA's Fishwatch site
www.fishwatch.gov

Save the Sea: Interesting Ocean Facts
savethesea.org/STS%20ocean_facts.htm

7. When letters are completed, allow time for students to share their letters with the class before mailing. Encourage all students to mail their letters. Every voice counts!

The Bridge Connection

www.vims.edu/bridge

Click on "Ocean Science Topics" in the navigation menu to the left, then "Human Activities" and "Environmental Issues" and then "Policy." There are many resources on ocean policy on these pages.

The "Me" Connection

Have students complete a journal entry on the following quote:

"The most striking feature of Earth is the existence of life, and the most striking feature of life is its diversity." (Tilman 2000). Dr. G. David Tilman is a Professor of Ecology from University of Minnesota.

Connections to Other Subjects

History, English, Language Arts

Evaluation

Evaluation can include think-pair-share activity, timeline activity, class discussions, and letter to senator/representative.

Extension

Post copies of students' letters to their policymakers in a visible place within the school in order to encourage political discussion among the student body. It might be productive to engage students in a debate of whether or not they want their names listed (i.e. is it important in a democracy to hold individuals accountable for their free speech?). Another point of discussion is whether or

not a space should be left to encourage fellow students to post replies. Would students expect any replies?

Additional Resources

- NOAA Fisheries Service
www.nmfs.noaa.gov/
- NOAA FishWatch
www.fishwatch.gov
- NOAA Habitat Conservation
www.habitat.noaa.gov/protection/index.html
- NOAA Fisheries – Office of Sustainable Fisheries
www.nmfs.noaa.gov/
- This Is NOAA Fisheries Video (10:18)
www.youtube.com/watch?v=gv4WsJcKM3Q&feature=related
- Fisheries Management: Building a Sustainable Future for America's Fisheries
celebrating200years.noaa.gov/visions/fisheries/welcome.html#impl
- USDOJ Protecting Ocean Fisheries: the Magnuson-Stevens Fishery Conservation and Management Act
www.justice.gov/enrd/4688.htm

Five Fish Desperate for a Healthy Habitat

Fish of interest:

About the Species:

Habitat Update:

Population:

Conservation Management:



NOAA FISHERIES SERVICE



During the 1990s, efforts to rebuild depleted **Atlantic sea scallop** populations led to their full recovery by 2001. The Atlantic sea scallop fishery is now not only one of America's most valuable, but also the most valuable wild scallop fishery in the world.



At low levels in the 1990s, **N. Atlantic swordfish** was rebuilt three years ahead of schedule (2006) and is now thriving. Interactions between pelagic longlines and sea turtles have been reduced by 90%, making this swordfish fishery one of the most environmentally responsible longline fisheries in the world.

The Road to End Overfishing: 35 Years of the Magnuson Act, April 13, 2011

Assistant Administrator for Fisheries Eric Schwaab Talks about the Cornerstone of Sustainable Fisheries

This year marks a turning point in the history of our nation's fisheries when we are on the cusp of ending overfishing by the end of 2011. This achievement is possible because of the Magnuson-Stevens Fishery Conservation and Management Act – which was enacted 35 years ago on April 13, 1976. Simply called “the Magnuson Act”, this law, its regional framework and goal of sustainability, has proven to be a visionary force in natural resource management - both domestically and internationally. The Magnuson Act is, and will continue to be, a key driver for NOAA as we deliver on our nation's commitment to ocean stewardship, sustainable fisheries, and healthy marine ecosystems.

Because of the Magnuson Act, the U.S. is on track to end overfishing in federally-managed fisheries, rebuild stocks, and ensure conservation and sustainable use of our ocean resources. Fisheries harvested in the United States are scientifically monitored, regionally managed and legally enforced under 10 strict national standards of sustainability. This anniversary year marks a critical turning point in the Act's history. By the end of 2011, we are on track to have an annual catch limit and accountability measures in place for all 528 federally-managed fish stocks and complexes. The dynamic, science-based management process envisioned by Congress is now in place, the rebuilding of our fisheries is underway, and we are beginning to see real benefits for fishermen, fishing communities and our commercial and recreational fishing industries.

But, we did not get here overnight. Our nation's journey toward sustainable fisheries has evolved over the course of 35 years. At this particular moment it is important to take time and reflect back on where we have been to understand where we are and fully appreciate the historic visions and strategic investments that got us here, particularly by the Act's principal architects, the late U.S. Senators Warren G. Magnuson of Washington State and Ted Stevens of Alaska.

To appreciate the history of Magnuson Act is to appreciate the history of environmental stewardship in the United States and the progress made in conservation over the last three decades. The Magnuson Act was ushered in during the era of environmental consciousness that still defines our nation's stewardship ethic today. Signed into law on April 13, 1976, the Magnuson Act followed passage of other laws dedicated to addressing the environmental damage incurred after decades of unfettered industrialization. These laws include the National Environmental Policy Act (1969), the Clean Air (1970) and Clean Water (1972) acts, and the Marine Mammal Protection (1972) and Endangered Species (1973) acts. Along with newly established agencies to implement them -- the Environmental Protection Agency and National Oceanic and Atmospheric Administration. It was the beginning of a new era.

In 1976, federal management of marine fisheries was virtually non-existent. With the exception of state managed waters, federal activities were limited to supporting a patchwork of fishery-specific treaties governing international waters, which at that time existed only 12 miles off our nation's coasts. A primary impetus of the Magnuson Act was to extend the U.S. exclusive economic zone (EEZ) out to 200 miles and eliminate competition from the foreign fishing fleets off our coasts.

However, even in its initial form, Senator Magnuson saw fit to focus on conservation as a centerpiece of the new law. Modeled on the basic principles of scientific management, including the notion of standards and catch limits, the law also included an innovative



Several years of catch reductions have allowed **mid-Atlantic summer flounder** to rebound from decades of overfishing. In 2010, the population was already 89 percent rebuilt, and scientists are optimistic that the stock will be fully rebuilt by 2013.



Declared overfished in 1999, **monkfish** populations are now rebuilt and well above target levels, demonstrating once again that strict science-based management measures work. On top of that, fishermen must follow a number of rules to protect habitat and minimize impacts to other species.

regional public-private management framework – creating the fishery management council system. The Magnuson Act laid the foundation for what has matured into the regional, science-based, and transparent fishery management process which exists in the U.S. today.

We all know too well the initial victory for conservation was short lived. Without effective regulatory restraints in place, by the late 1980s Americanization of the fleet and advancements in fishing technologies over ran the slower-growing science and management infrastructures, exploding the rate of domestic driven overfishing and quickly leading to the depletion of some of our nation's most iconic fisheries – perhaps the most painful being the historic collapse of our nation's oldest fishery, the New England groundfish fishery. The Magnuson Act was at a turning point. The 1996 amendments to the Act provided needed adjustments, including a new focus on habitat and the requirement for a 10 year rebuilding timeline.

Since that time, the Magnuson Act has undergone several reauthorizations – each one building upon and strengthening the previous. The most recent and transformative change was in 2007, under the leadership of Senator Stevens whose commitment to sustainable use - and growing concern over unsustainable fishing practices internationally - helped galvanize the earlier vision of Senator Magnuson. In 2007, Congress gave NOAA and the regional fishery management councils a clear mandate, new authority, and new tools to achieve the goal of sustainable fisheries within measurable timeframes. Notable among these were the requirements for annual catch limits, and accountability measures to prevent, respond to, and end overfishing – real game changers in our national journey toward sustainable fisheries, and ones that are rapidly delivering results.

Today, many stocks that were overfished are rebuilt or actively rebuilding. Successes include summer flounder, monkfish, scallops, ling cod, sablefish, North Atlantic swordfish, vermilion snapper, and gag grouper to name a few. Even the iconic Northeast groundfish fishery is turning the corner with anticipated higher catch levels allowed for 12 of the 20 groundfish stocks in the 2011 fishing season – the first time this has happened in over a decade.

Much of this progress has been due to the collaborative involvement of our U.S. commercial and recreational fishing fleets and their commitment to science based management, improving gear-technologies, and application of best-stewardship practices. Supported by the hard work of the regional fishery management councils whose innovative, management strategies have allowed fishermen to grow with stocks. One notable new development, emphasized in the 2007 reauthorization, was a focus on consideration of catch share programs. Catch share programs promote fishing based on good business decisions and stewardship practices rather than on the earlier years of 'race-to-fish' or 'days-at-sea' strategies that were often as dangerous for crews as they were unsustainable for the resource.

The success of the regional fishery management framework – and its ability to reflect the ecological and socio-economic needs unique to each region – is also influencing growth and improvement in management of international fisheries that now organize as 'regional fishery management organizations.'

Today, the Magnuson Act – at 35 years of age - is at another turning point in its journey – one involving a more inclusive collaboration between fishing industries, conservationists, consumers and the broader seafood supply chain. At this point, we are turning the corner toward a future when ending overfishing can be a concern of the past, and where maintaining sustainable fisheries is a shared commitment to our future. And, as we turn this corner, we can turn more of our collective energies to more effectively address the far more difficult challenges of habitat degradation and international illegal fishing practices that are undermining the health and abundance of our global ocean resources. The success of the Magnuson Act and the visions of its architects have placed us on solid ground for this continuing journey. But we need to continue to work together to get there.