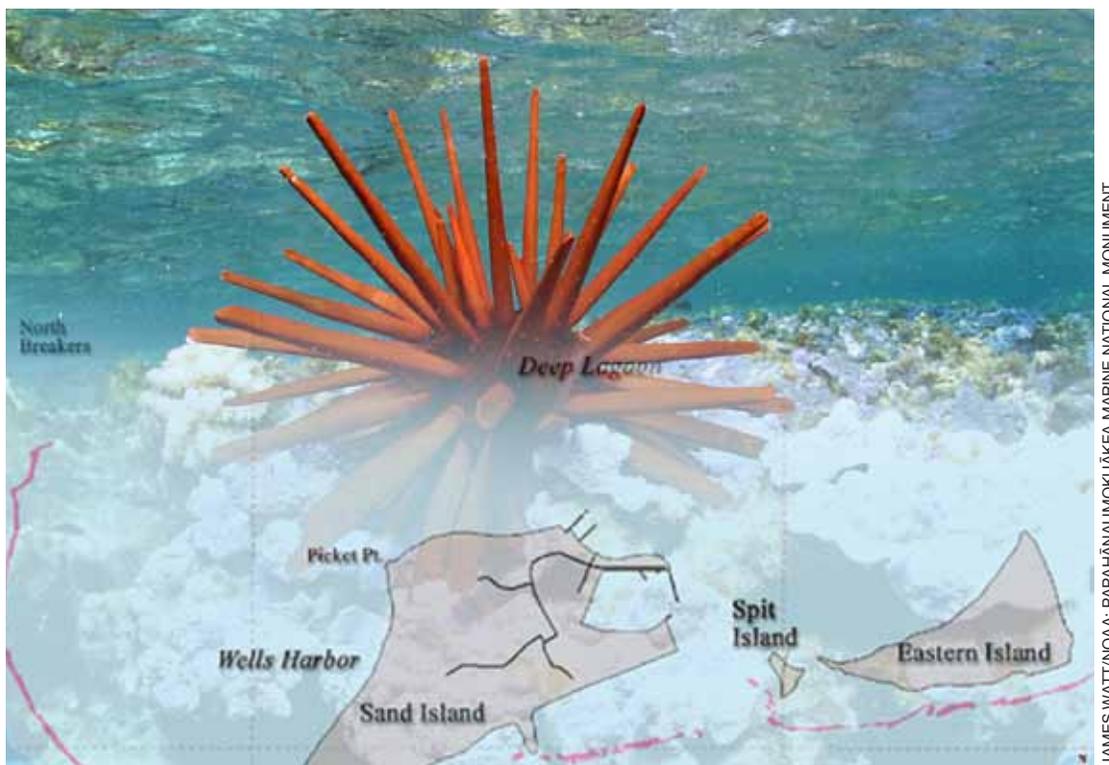


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Papahānaumokuākea



JAMES WATT/NOAA: PAPAĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT

- Post Reprint: “Obama creates the largest protected place on the planet, in Hawaii”
- Student Activity: Role Play: Science and Expert Testimony —
Discovering the Interconnections Between Science, Law and the Public
- Teachers Notes: Role Play: Science and Expert Testimony
- Student Activity: ‘Containing Man and Beast’

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We are tied to the ocean. And when we go back to the sea, whether it is to sail or to watch it, we are going back from whence we came. — *President John F. Kennedy*

With every drop of water you drink, every breath you take, you are connected to the sea. No matter where on Earth you live. — *Sylvia A. Earle*



Although separated by five decades, these two quotations — one from a politician and one from a scientist — illustrate an appreciation and knowledge of the importance of the ocean to life on our planet. As well as to the soul and spirit of man.

Only relatively recently have coastlines and areas of the ocean been set aside for two related purposes: wildlife conservation and resource management. The “Role Play: Science and Expert Testimony” activity provided by Lisa Wu, marine biology lab director, Thomas Jefferson H.S. for Science and Technology, helps

students to understand the complexity of environmental issues and federal oversight, to develop research skills and to hone persuasive presentation techniques. These skills are necessary to become active decision-makers and ultimately, the scientists, leaders and decision makers of tomorrow.

As the legendary explorer and ocean researcher Sylvia Earle stated, “We must protect the oceans as if our lives depend on it – because they do.”

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Obama creates the largest protected place on the planet, in Hawaii

BY JULIET EILPERIN

• *Originally Published October 26, 2016*

President Obama on Friday created the largest ecologically protected area on the planet when he expanded a national marine monument in his native Hawaii to encompass more than half a million square miles.

The president more than quadrupled the size of the Papahānaumokuākea (pronounced “Papa-ha-now-moh-koo-ah-kay-ah”) Marine National Monument to 582,578 square miles of land and sea in the Northwestern Hawaiian Islands.

President George W. Bush established the monument a decade ago, but Obama’s action Friday underscores the high priority he has

placed on issues of conservation and climate change in his second term. The president has now used his executive authority under the 1906 Antiquities Act to protect more than 548 million acres of federal land and water, more than double the set-asides of any of his predecessors.

Many scientists, environmentalists and Native Hawaiians have argued for more stringent protections for the biologically rich region, given important deep-water discoveries in the area and the dual threats of climate change and sea-bed mining.

“The oceans are the untold story when it comes to climate change, and we have to feel a sense of urgency when it comes to protecting the ocean that sustains us,” said Sen. Brian Schatz (D-Hawaii), who helped broker a compromise with

groups including Native Hawaiians and day-boat fishermen.

In his official proclamation, Obama declared, “It is in the public interest to preserve the marine environment.”

All commercial extraction activities, including fishing and future deep-sea mining, will be prohibited in the expanded monument area. However, recreational fishing, removal of resources for traditional Hawaiian cultural purposes and scientific research will be allowed with a federal permit.

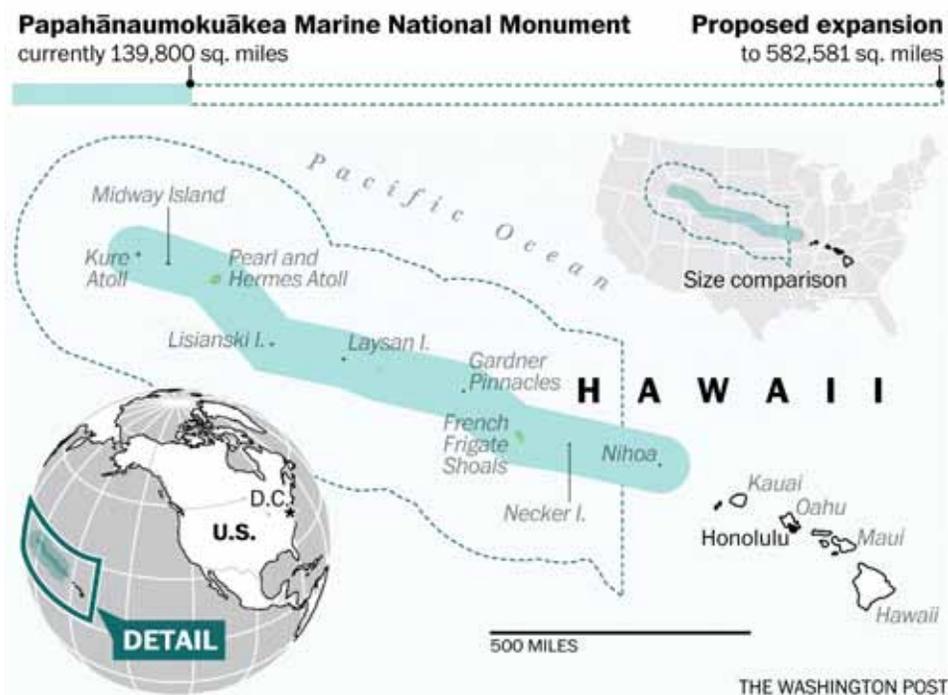
Obama will highlight his action in an address Wednesday to the Pacific Islands Conference of Leaders and the IUCN World Conservation Congress in Honolulu, and will travel the following day to Midway Atoll, which is located within the current monument.



Sealife abounds on the pristine reefs in the Monument.

KALEOMANUIWA WONG

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The president has unilaterally established more than two dozen national monuments, most of them in his second term. White House press secretary Josh Earnest said Obama “would be happy to sign into law a piece of legislation that would have protected these waters, but we haven’t seen that kind of legislative activity in this Congress, and it means the president has had to make more effective use of his executive authority.”

Longline fishermen lobbied against any new protections, arguing that their industry rejects damaging practices such as trawling and needs flexibility to sustain an annual catch valued at more than \$100 million.

“We move all over the ocean, in the way the fish move,” said Jim Cook, co-owner of POP Fishing and

Marine, a Honolulu store, adding that the new restrictions mean 60 percent of federal waters off Hawaii are now closed to fishing.

With Friday’s action, seven presidents — starting with Theodore Roosevelt in 1909 — have taken steps to safeguard parts of the archipelago, which is one of the most biologically diverse areas in the world. It is the planet’s largest seabird gathering site, with more than 14 million birds from 22 species, and is home to nearly all Laysan albatrosses and the remaining endangered Hawaiian monk seals.

Recent research expeditions have unearthed extraordinary features beyond the existing monument boundaries, such as the world’s oldest living animal — a black coral estimated to be 4,500 years old — and six massive seamounts, one of

which is nearly 14,000 feet high and teeming with life. This area also includes the wreckage of the *USS Yorktown*, which sank during the Battle of Midway in 1942 and has not been visited since it was discovered there in 1998.

Daniel Wagner, a researcher at the National Oceanic and Atmospheric Administration who served as the scientific lead for the agency’s deep-water expeditions in the region a year ago and again in February, said every one of the 50 biological samples that remotely operated vehicles recovered were either new species or “not known to live in the area.”

“We’re seeing a lot of life, a lot of new life and a lot of very old life,” he said. “Things have not been disturbed for a very long time.”

Wagner said he is particularly concerned about future underwater mineral extraction, given the rich deposits of manganese, nickel, zinc, cobalt and titanium in the region. “If they’re not protected, they’re going to be exposed to mining,” he said.

Matt Rand, director of the Pew Charitable Trusts’ Global Ocean Legacy program, said that intact ecosystems such as these “offer a glimpse of what our planet was like before the impacts of human activity, and it is critical that we preserve places in this way, both as a window to the past and for future generations.”

Schatz suggested a change to the proposal that carved out areas where day-boat fishermen in Kauai and Niihau can continue operating. His suggestion won the support of

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influential state officials such as Democratic state Sen. Ron Kouchi. Kouchi said in an interview that he could back Obama's expansion as long as it is the last one.

"One of the questions the fishermen are asking is, 'When will it stop?'" he said.

Federal officials estimate that 5 percent of current commercial fishing efforts will be displaced. Longline operators already catch about half their fish in international waters, and they reached their annual catch limit for big-eye tuna in early August.

However, Sean Martin, president of the Hawaii Longline Association, said the industry's fleet of 145 boats could not match the lobbying power of well-financed environmental groups such as Pew.

"We're obviously going up against environmental organizations that have billions of dollars," Martin said.

"For somebody to feel good, we're going to force U.S. fishermen out of waters."

Republicans have accused Obama of abusing his authority under the Antiquities Act, which says any protections must "be confined to the smallest area compatible with proper care and management of the objects to be protected."

But Richard Pyle, a researcher at Hawaii's Bishop Museum, said he and other scientists have concluded that the ecological interconnectedness of the region — including the fish larvae that are dispersed on currents, and the sharks and other pelagic fish that travel vast distances — extends beyond federal waters.

"The minimum space necessary for protection, it's more about 350 to 380 miles, but of course we don't have the jurisdiction for doing so," Pyle said.

Some Native Hawaiian activists,

moreover, lobbied for greater protection so they could continue to observe traditional voyaging practices in which they navigate without instruments. The state Department of Land and Natural Resources and the Office of Hawaiian Affairs will serve as trustees in managing the monument.

William Aila, a former state official and Hawaiian activist, said Thursday that the president's move will preserve "a cultural seascape, with the history of the Polynesians who migrated up to Hawaii."

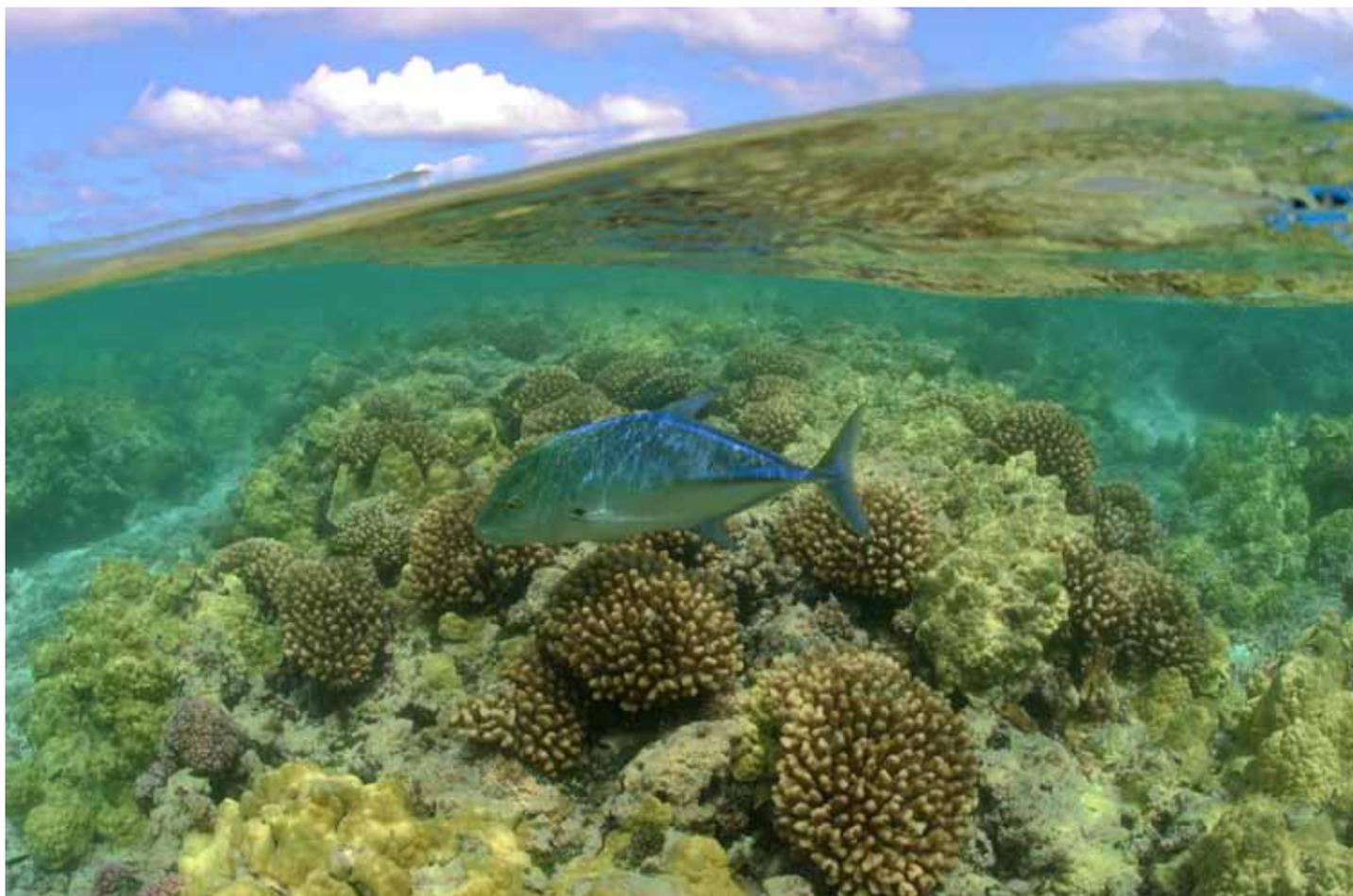
He recalled that when he journeyed to Mokumanamana, or Necker Island, in 2009, "you could feel the presence of your ancestors," not just in the earth but in "the symphony of birds, all night and all day long."

Asked what he thought of the monument expansion, Aila switched to Hawaiian. "Olu olu," he said. "In English, that's 'very pleasant.'"

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Role Play: Science and Expert Testimony

Discovering the Interconnections Between Science, Law and the Public



JAMES WATT/PAPAHANAUMKUAKEA MARINE NATIONAL MONUMENT

The Northwestern Hawaiian Islands are home to more than 7,000 marine species, including the Bluefin Trevally.

The nation maintains stewardship of its natural resources, including seashores and oceans. We gain understanding of the ocean ecosystems, make discoveries and create sanctuaries to preserve and protect them for the enjoyment of present and future generations. Many businesses and individuals wish to have access to work within these areas and use their resources — this is where the complexity of management, competing interests and funding priorities intersect.

BACKGROUND

In August of 2016, President Obama announced the expansion of the Papahānaumokuākea Marine National Monument making it the world's largest protected area – nearly 1 billion acres of lands and waters for wildlife including coral reefs, seamounts, and undersea ridges. This National Monument is home to endangered species including blue whales, short-tailed albatrosses, sea turtles, the last Hawaiian monk seals, and some of the oldest animals on Earth – deep sea black corals.

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Only one month later, President Obama declared the first fully protected area in the U.S. Atlantic Ocean designating 4,913 square miles off the New England coastline as a new marine national monument — Northeast Canyons and Seamounts Marine National Monument.

These and other monuments and preserves were created by executive authority granted by the Antiquities Act. They are evidence of the Obama administration's conservation policy and commitment to preservation of natural resources. Did you ever wonder how policies come to be? What are the scientific requirements necessary for crafting effective environmental policy? Who advises the president and executive branch on science-related issues?

The legislative branch is also involved in the federal mission to preserve natural areas for all Americans and future generations. The National Park Service, sanctuaries and preserves have been established by acts of Congress. The partnership of legislative and executive branches is demonstrated as Congress designates the agencies of the executive branch to manage the new federally protected areas.

How is legislation that affects the National Marine Sanctuary Act changed over time to remain relevant? How may its provisions for restrictions, prohibitions, regulated activities and allowances be altered? One method requires the reauthorization of funding for the projects established by legislation.

YOUR ASSIGNMENT

In this activity you are not writing legislation. You are to be experts addressing the House Natural Resources Committee that is responsible for reauthorization of the National Marine Sanctuaries Act (NMSA). This piece of legislation has been passed by Congress and signed into law, but is facing the need for reauthorization.

Congress not only authorizes or establishes a sanctuary, it also authorizes funding. Since the authorization of funding is given in five-year increments, the NMSA must be "reauthorized" every five years.

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THE ACT THAT FACES REAUTHORIZATION

The National Marine Sanctuaries Act

SEC 317 16 USC 1445 NT National Marine Sanctuaries Act

The Office of National Marine Sanctuaries, part of the National Oceanic and Atmospheric Administration, manages a national system of 14 underwater-protected areas. Since 1972, the Office of National Marine Sanctuaries has worked cooperatively with the public and federal, state and local officials to promote conservation while allowing compatible commercial and recreational activities. Increasing public awareness of our marine heritage, scientific research, monitoring, exploration, educational programs and outreach are just a few of the ways the Office of National Marine Sanctuaries fulfills its mission to the American people.

Under the 1972 Marine Protection, Research and Sanctuaries Act, the Secretary of the Department of Commerce is authorized to designate discrete areas of the marine environment as national marine sanctuaries to promote comprehensive management of their special conservation, recreational, ecological, historical, research, educational or aesthetic resources. The U.S. Congress can also designate national marine sanctuaries. The president can also use the authority of the Antiquities Act to establish marine national monuments to be managed as part of the National Marine Sanctuary System.

For More Information

American Antiquities Act of 1906

<https://www.nps.gov/history/local-law/anti1906.htm>

National Marine Sanctuaries Act

<http://sanctuaries.noaa.gov/library/national/nmsa.pdf>

NMSA Reauthorization

<http://sanctuaries.noaa.gov/management/reauthorization.html>

Committee on Science, Space & Technology

<https://science.house.gov/legislation/bills>

“In Grand Gesture Stage of Presidency Obama Seeks Stamp on Environment”

https://www.washingtonpost.com/politics/obama-tries-to-make-a-big-splash-on-climate-change-on-his-way-out/2016/09/01/123e1604-6ed5-11e6-9705-23e51a2f424d_story.html

“Obama creates the largest protected place on the planet, in Hawaii”

Article located in this resource guide: *Papahānaumokuākea*

“Obama designates the first-ever marine monument off the East Coast, in New England”

Article located in *Monuments, Parks and Sanctuaries resource guide*

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STAKEHOLDERS

As you delve beyond what is on the page of the current law to understand and convey its strengths and weaknesses, opportunities and challenges, consider how the law affects all the possible stakeholders.

In groups you will represent different governmental or non-governmental stakeholders. Scientific areas of expertise will include a federal scientist, academic scientist, industry scientist and state scientist. In addition, you will play the role of six other representative stakeholder groups with business, cultural and personal interests.

Examples of the representative science stakeholders groups include:

1. Federal Scientist (From NOAA, EPA, USDA, USFW, NPS, BLM, APHIS and USDA)
2. State Scientist (Appropriate state agency, i.e., DNR of HI)
3. Industry Scientist (Local/regional industry, i.e., aquaculture, ecotourism, oil industry)
4. Academic Scientist (a scientist conducting research at a university)

Examples of non-governmental and non-scientific groups include:

5. Non-Governmental (generally not federally funded but may include scientific work, i.e., Ocean Exploration Trust; National Geographic)
6. Commercial fisherman
7. Tribal representative
8. Seafood restaurant owner
9. Recreational fisherman
10. Social scientist, i.e., an economist

WRITTEN AND ORAL TESTIMONY TO INFORM AND SHAPE REAUTHORIZATION

Students will work in a team of three to four members. Each team member will become an “expert” on a specific stakeholder’s point-of-view. Scientists should use their areas of expertise to clearly inform policy makers on the science behind the reauthorization issues. Other stakeholders will inform the House Subcommittee on Fisheries, Wildlife and Oceans members of the specific impact on them. Each student will draft a narrative testimony to uphold and present his or her stakeholder’s view and to make recommendations.

The following should clarify your role, your research and what you are to do when research and group decisions have been made.

Keep research focused on your particular interest

> The scientist stakeholders need to communicate requirements needed to fully preserve and protect the marine resource. You should focus on researching your assigned area of science. Locate current research, supporting documents and accurate scientific ideas to fully understand the complexity of the sanctuary and its importance.

> All other stakeholders should explore the backgrounds of your assigned stakeholders and grasp why they are concerned with, or instrumental to, marine sanctuaries. Based on the information you find, you will need to make specific recommendations on what your specific stakeholder would like to see addressed. Do you want protections

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to continue or be reduced? Do you want funding for new programs, legislation enforcement or economic protection?

Share research within your group

- > Following your research, each team should itemize its main findings, the facts and main arguments.
- > Discuss and determine your group's main argument. Each group should provide no more than three specific recommendations. When forming your recommendations, you should consider the following as you relate to the scientific issues involved and your stakeholders' primary interests: economic impacts, environmental impacts, community impacts, resources and services, research and development opportunities.

Prepare written testimony

- > Write a final statement or testimony. In this document, your group is making recommendation on what needs to be addressed to support instituting new measures or revising legislation on the topic. This will determine the decisions on funding appropriation.

The team's written report should include:

- a. One to three recommendations that the individual stakeholders have come to consensus on.
- b. Three to four works cited including primary and secondary sources.
- c. APA formatting (<http://owl.english.purdue.edu/owl/resource/560/01/>)
- d. Visual aids: Graphs, charts, or tables should be specifically used to explain or reinforce a stakeholder's point(s). No more than two per stakeholder. Groups may also have up to ten photographs to highlight their perspective.

Present your testimony

- > Present oral testimony to the class (as would be done to the congressional Committee). Although written testimony will be 300-500 words, a 100-word abstract may be read for the oral testimony by each stakeholder.

The team's oral testimony should include:

- a. Presentation of testimony by each group member. This testimony, should be based on your research and your group's written argument.
- b. Testimony that is able to be presented in less than three minutes.
- c. Recommendations that are well thought out, specific, and highlight each group's consensus. Oral testimony should not be a summary of the individual group member's expert reports but a collaborative set of recommendations.

AFTER FORMAL TESTIMONY

As a class, play the role of the House Subcommittee on Fisheries, Wildlife and Oceans. Here are areas for consideration:

- Did each group clearly present their point of view and arguments?
- Did the charts, photographs and other graphics strengthen your understanding of the issue and point of view? Or did they distract?
- Do the four groups of scientists agree on needed areas of funding and protection?
- Do the other stakeholders have areas on which they agree?
- Where is the most disagreement or difference of perspective on the existing Marine Sanctuary Act?
- Which of the ten stakeholders has made the most effective and persuasive argument?

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TEACHERS NOTES

Role Play: Science and Expert Testimony is a group activity that brings together science topics — marine biodiversity and marine sanctuaries, branches of government — executive and legislative, congressional oversight — reauthorization of the National Marine Sanctuaries Act. The roles students are asked to research and present are based on the reality of the federal government’s funding hearings and the persuasiveness of experts and interest groups who come before committees.

Objectives

- to provide students with a broader understanding of the interconnections between science, law and the public
- to increase their knowledge on the importance of the scientific requirements necessary for crafting effective policy and implementing legislation
- to improve their analysis skills
- to gain experience preparing a formal testimony
- to hone their critical thinking and cooperative learning skills
- to provide written testimonies and role play as witnesses to Congress on the topic of marine sanctuaries
- to be familiar with academic research strategies
- to develop science literacy related to understanding marine sanctuaries (science and society)

These resources may provide you with additional information to give students background on the establishing and maintaining of national marine sanctuaries.

- National Marine Sanctuaries History Timeline
<http://sanctuaries.noaa.gov/about/history/>
- NOAA: Teacher Resources
<http://sanctuaries.noaa.gov/education/teachers/>
- National Marine Sanctuary Frequency
<http://sanctuaries.noaa.gov/about/faqs/>
- Presidential Proclamation — Northeast Canyons and Seamounts Marine National Monument
<https://www.whitehouse.gov/the-press-office/2016/09/15/presidential-proclamation-northeast-canyons-and-seamounts-marine>

The Washington Post Articles:

- “In Grand Gesture Stage of Presidency Obama Seeks Stamp on Environment”
- “Obama Creates the First Ever Marine Monument Off the Coast of New England”
- “Obama Calls for Further Steps to Protect Oceans”

Watch for continued coverage of science-related news and topics of interest.

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'Containing Man and Beast'



Talleo, an Osage Warrior, painted by George Catlin, NPS.GOV, courtesy Smithsonian American Art Museum

The artist George Catlin is believed to have encouraged establishing “a nation’s park, containing man and beast, in all the wild and freshness of their nature’s beauty.” The esthetic value of mountains, land, seashores and oceans is one factor in creating a national park or monument to this day.

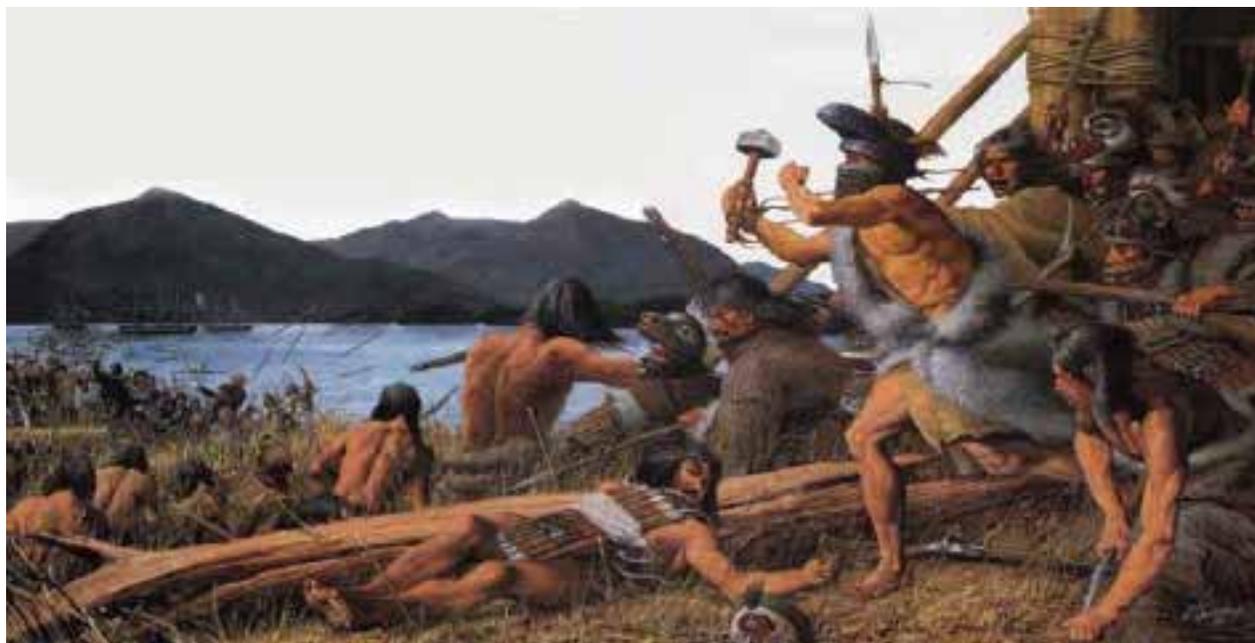
The National Park Service has seen the value of artists as interpreters and advocates for protected areas. President Franklin Delano Roosevelt’s New Deal projects included engaging artists in decorating federal buildings. In addition to preserving the natural beauty, the NPS is involved in preserving our cultural heritage.

Ansel Adams, prominent among professionals who captured life in the wild, photographed many of the established and proposed national parks. A major collection of these beautiful images may be viewed in the National Archives collection [<https://www.archives.gov/research/ansel-adams>].

Although Karin Brulliard’s blog focuses on bears, check out the early photographs of bears in “Here’s what seeing bears at National Parks looked like 90 years ago.”

[<https://www.washingtonpost.com/news/animalia/wp/2016/05/16/9-photos-of-the-crazy-things-the-national-parks-once-did-to-lure-bears-for-tourists/>]

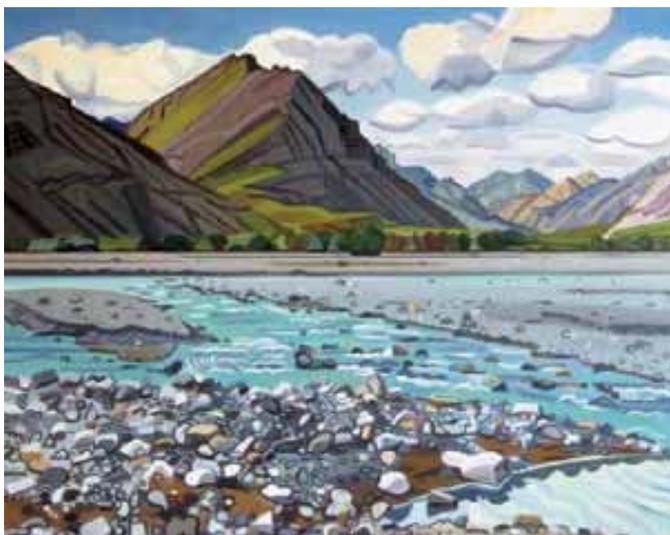
Take your camera, pencils or paint brush to a state or national park. Capture today’s scenes. Embrace the colors and seasons. Include the animals and people who are enjoying the park.



Battle of Sitka, acrylic painting on canvas by Louis S. Glanzman, 1988

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These works of art were created by artists using varied media. What stories do they tell?



Marsh Fork of the Canning River, oil painting on canvas by David Mollet, 1993



Multiplying Wolf Houseposts, by Sitka artist Jim Jacobs (Kichxook, Yeil Nuwu), 1904: Photo, E.W. Merrill, 1929



Detail from Grand Canyon of the Yellowstone, oil on canvas by Thomas Moran, 1872

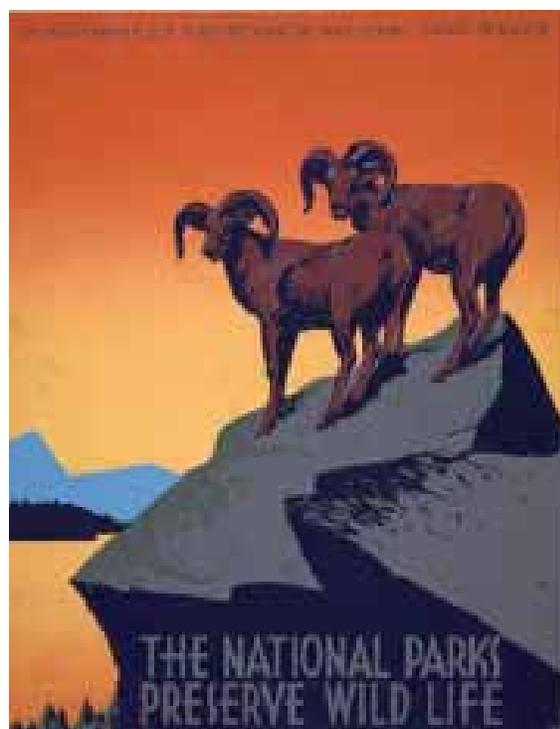
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Detail from **Gentle Generations**, acrylic painting on hardboard by Kurt Jacobson

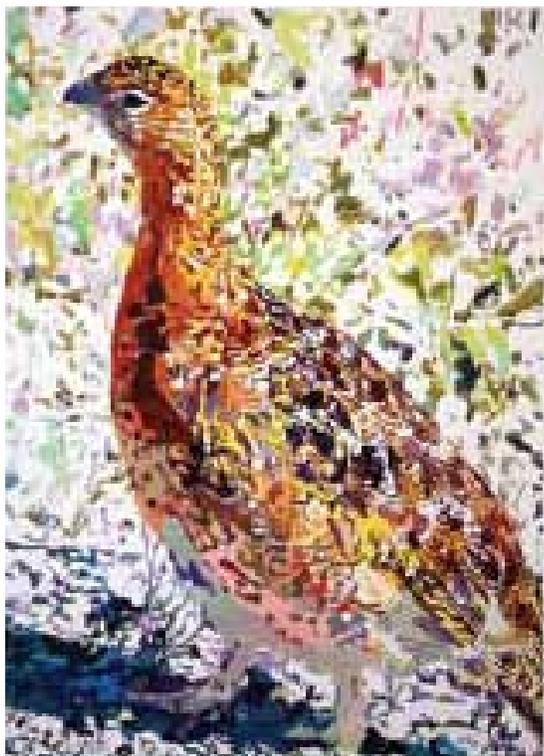


Hanging Glaciers, watercolor painting by Mark McDermott

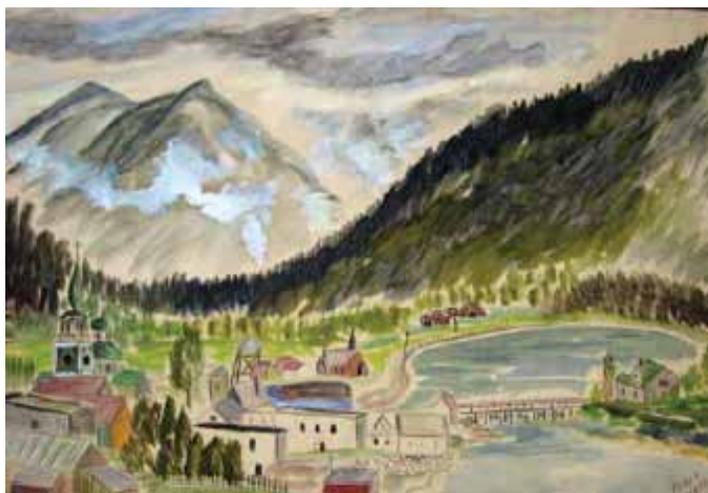


Silkscreen poster by J. Hirt for the WPA, 1939, Library of Congress

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Ptarmigan at Teklanika, acrylic painting on paper by Kesler Woodward, 2007



Sitka, Alaska, by artist Antonio Mattei, for the WPA's 1937 Alaska Art Project, National Park Service Collection, Sitka National Historical Park



Detail from **Grand Canyon of the Yellowstone**, oil on canvas by Thomas Moran, 1872