Defending Liberty
Pursuing Justice

ABA SECTION OF ENVIRONMENT ENERGY AND RESOURCES

Marine Resources Committee Newsletter

Vol. 13, No. 2 **July 2010**

MESSAGE FROM THE CHAIR

Robin K. Craig
Marine Resources Committee Chair

As I write this message, oil from the Deepwater Horizon platform continues to spill into the Gulf of Mexico for the second month, although BP reports that it is now capturing about 20,000 gallons per day. Containment efforts are projected to last well into the fall, and cleanup will continue for an as-yet-unpredictable length of time thereafter. Tar balls have begun to appear on the shore as far east as the Florida Panhandle, but the prospect of oil getting into the Loop Current and the Gulf Stream remains a waking nightmare.

No one has yet fully thought through the legal consequences of the Deepwater Horizon oil spill in the Gulf, in part because no one yet knows the full consequences, human or environmental. Nevertheless, lawsuits are already mounting, with claims ranging from wrongful death for the 11 workers who died, to fishers' claims for damages resulting from the fisheries' closures, to the federal government's criminal action, to Endangered Species Act liability for the deaths of sea turtles and other protected species, to natural resources damages and cleanup liability under the Oil Pollution Act.

It is rare that the topics of interest to members of the Marine Resources Committee make—and hold—the national headlines, but that's where we've been for at least the last month or more. The ABA Section of Environment, Energy, and Resources is planning to make the oil spill a central theme of the 18th Section Fall Meeting, which is coincidentally being held in New Orleans. As liability and environmental issues solidify, the leadership of this Committee is planning Quick Teleconferences for the upcoming year. Finally, the next issue of this newsletter will focus on a variety of topics related to the Gulf spill, and there is still time to contribute.

Nevertheless, it is important to remember that other things are going on that are relevant to this Committee. The Cape Wind offshore energy project, for example, received its final approvals. The federal Ocean Policy Task Force is proceeding with its work, and both the federal government and the states have revitalized efforts to establish a national system of marine protected areas.

This issue of the newsletter, therefore, serves as a reminder that Marine Resources covers a variety of subjects. Moreover, we are showcasing some new contributors.

Things are happening in Massachusetts! Anthony Bowers discusses the state's Ocean Act, while Amy Kocher Sluszka explores the issue of federal fisheries management in Massachusetts. Rounding out this issue, Jane Graham highlights the intersection of climate change and marine resources law by examining the potential role of the National Marine Sanctuaries Act in an era of climate change.

As for Committee business: the Committee is in the process of transitioning to the next ABA year, which runs August to August. I have been asked to serve

Marine Resources Committee Newsletter
Vol. 13, No. 2, July 2010
Chad J. McGuire, Editor

In this issue:

AMERICAN BAR ASSOCIATION
Section of Environment, Energy, and Resources

again as Chair of the Committee for next year, and in that capacity I sent out an e-mail to all members asking what you would like the Committee to do and focus on in the coming year. Please send me your suggestions at rcraig@law.fsu.edu.

In addition, we have room for a few more Vice Chairs, and, of course, everyone is welcome to contribute to the newsletter!

I look forward to your participation in the coming year!

Robin Craig
Chair, Marine Resources Committee

MASSACHUSETTS OCEAN ACT: A NEW WAY OF LOOKING AT OCEAN PLANNING

Anthony Bowers

Introduction

The Massachusetts Ocean Coalition heralds the Commonwealth's 1500 miles of coastline and its 1.6 million acres of sub-tidal lands that are an integral part of, amongst other water bodies, the Gulf of Maine, one of the most biologically productive marine ecosystems in the world. The ocean is home to fragile and critical underwater habitat that, for thousands of years, has supported groundfish like the Atlantic cod, as well as other species like the endangered Atlantic right whale. A wooden carving of the Atlantic cod, affectionately known as the "sacred cod," hangs in the House chambers of the Massachusetts State House, testimony to the great importance of marine resources to the state's culture, history, and economy (*see* www.massoceanaction.org).

Prior to this landmark legislation (Massachusetts Oceans Act of 2008), development of state waters was decided on a mostly ad hoc basis. Piecemeal management of state waters is now deemed unsustainable and impracticable, and has catalyzed the development of a more comprehensive ocean management plan. The plan is based on the best available scientific data available. The regulatory scheme of the plan focuses on the proposal review and permitting process for any development in state waters.

This article provides an overview of the Massachusetts Ocean Act, including a summary of the background that led to the formation of the act; the purpose behind the act; categorical recommendations made by the Ocean Management Task Force; and how these recommendations were incorporated into the final Ocean Management Plan that was mandated by the Ocean Act. The goal is to offer an example to practitioners on how one state has attempted to proactively manage its ocean resources through a comprehensive scheme of planning.

Background

On January 4, 2010, Energy and Environmental Affairs Secretary Ian Bowles released the nation's first comprehensive management plan for the state ocean waters of Massachusetts. The Ocean Management Plan (the plan) provides a comprehensive plan for development of the Commonwealth's waters to three nautical miles, the state's jurisdictional limit. It provides new protections for critical environmental resources and sets standards for offshore wind energy and other commercial activities. It was the culmination of years of public comment, proposals, scientific data, and legislation.

Regress to 2003 when Governor Mitt Romney created the Massachusetts Ocean Management Initiative in response to reports that the federal and state governments were not managing ocean resources in economically or ecologically sustainable ways. Also, the Buzzard's Bay oil spill and the proposed Cape Wind project, although in federal waters, had highlighted deficiencies in the state's ability to manage state waters. The twenty-three member Task Force spent months holding meetings, collecting data and public comment. The Task Force's report, *Waves of Change*, was released in March 2004. It proposed fifteen recommendations for a comprehensive approach to ocean resource management.

The Ocean Act was signed into law by Governor Deval Patrick on May 28, 2008. It created oversight of ocean-based development and coordination between state agencies. The act also mandated the Secretary of the Executive Office of Energy and Environmental Affairs (EEA) to create, implement, and modify a management plan governing state ocean waters and required the final plan to be promulgated by December 31, 2009. It required the plan to set out goals, siting priorities, and standards for proper stewardship of ocean waters, and to include coordination with federal, state, and local jurisdictions; to foster uses that capitalize on economic opportunity without significant detriment to the ecology or natural beauty of the ocean; and to identify appropriate locations and performance standards for activities, uses, and facilities that are allowed.

The act created an Ocean Advisory Commission and an Ocean Science Advisory Council to assist in creating the plan and advise the Secretary on an ongoing basis. The Ocean Advisory Commission is to consist of seventeen members including representatives

of state agencies, the legislature, municipalities, and environmental, fishing, and marine industry interests. The commission is charged with making recommendations to the Secretary for the proper management and development of the plan. The Ocean Science Advisory Council consists of nine scientific members from academia, industry, and government. It is charged with gathering scientific information on ocean resources so that the Secretary can make decisions based on the best scientific data available.

The Plan

The final version or the Massachusetts Ocean Management Plan was released by the Secretary of the Executive Office of Energy and Environmental Affairs on January 4, 2010 (for full language of the management plan *see* http://www.mass.gov/?pageIaD =eoeeahomepage&L=1&L0=Home&sid=Eoeea). The plan consists of two volumes. Volume 1 consists of three chapters and specifically details the management and administration of the overall plan. Volume 2, which was mandated by the Ocean Act, includes information on the baseline assessment and scientific framework on which the plan was based.

Chapter 2 of volume 1 sets out management criteria of the plan. It specifically details the management areas and identifies and protects significant marine resources. It establishes three categories of management areas: prohibited, renewable energy, and multiuse areas, all with standards for evaluation of proposed marine uses.

Chapter 3 of volume 1 details the administration and implementation of the plan. It mandates, as required by the Ocean Act, review of the plan at least every five years. Routine updates and revisions to the plan are also required. The administrative components in this chapter are to ensure effective application of specific provisions of the plan. It also details the role various state agencies will take under the new plan and the input from stakeholders and experts, and partnerships. This section describes the Ocean Advisory Commission and Scientific Advisory Council and their respective roles. It accounts for the consideration of regional planning agencies and federal agency input. It also standardizes the collection of scientific data and ongoing performance and progress assessments.

Volume 2 is an ambitious and exhaustive collection of scientific data on all known uses and resources in the state's ocean waters. It reiterates and details the mandate for standardized data collection and summarizes water features such as temperature, wave dynamics, and water quality in the management areas. Chapter 3 of this volume is an analysis of the seafloor and associated features and accounts for geology, sedimentation, and biodiversity of the seafloor. Chapter 4 catalogues the habitat of plants, fisheries, marine mammals, and other marine species. Chapter 5 distinguishes any archeologically or culturally significant areas within the management areas, including shipwreck and Native American and other historical sites. Chapter 6 is an exhaustive description of all known human activity. Chapter 7 dictates economic value on human activities catalogued in chapter 6. Finally, chapter 8 accounts for the possibility of climate change affecting ocean temperature, acidity, sea level, and weather patterns.

Reconciling Task Force Recommendations with the Ocean Management Plan

The Ocean Management Task Force categorized its recommendations in four ways: governance, management, scientific understanding, and outreach. The Task Force sought the furtherance of certain goals in these recommendations that largely formed the final Ocean Management Plan. These goals in the preamble of their report included protecting the ocean's resources as a public trust, valuing biodiversity, respecting ecosystem interdependence, fostering sustainable uses, encouraging public participation in the process, and use of the best available information. The recommendations have clearly been influenced by these goals.

Governance Recommendations

1. The first governance recommendation by the Task Force sought comprehensive ocean resource management. It called for an Ocean Resource Management Act that would mandate a comprehensive

plan to centralize objectives and strategies and define planning areas and regulate activities within those areas. The recommendation also suggested incorporation and coordination of existing environmental protections and departments. The Division of Marine Fisheries would retain jurisdiction over fisheries management. Other departments and laws to be affected or incorporated would be the Department of Environmental Protection, Department of Conservation and Recreation, Coastal Zone Management, and the Oceans Sanctuaries Act.

The final version of the plan completely addresses this recommendation in several ways. The Division of Marine Fisheries retains exclusive jurisdiction over fisheries management in state waters. It centralizes the comprehensive plan by incorporating it into the Coastal Zone Management program. Along with Energy and Environmental Affairs, the Department of Environmental Protection, and the Division of Marine Fisheries, the office of Coastal Zone Management must harmonize existing regulations with the new plan. The plan grants oversight authority to the Secretary of the Executive Office of Energy and Environmental Affairs with the assistance of an Energy and Environmental Affairs Ocean Team comprised of personnel from all relevant environmental and conservation agencies in the Commonwealth.

2. The second governance recommendation requested that the comprehensive plan be coordinated with the cooperation of federal, state, and regional agencies. As mentioned above, many other state environmental agencies have a role in revising regulations to be consistent with the Ocean Management Plan and hold seats on the Ocean Team. The Ocean Advisory Commission, as mandated by the Ocean Act, also includes the directors of Coastal Zone Management and the Division of Marine Fisheries, as well as the commissioner of the Department of Environmental Protection.

Regional agencies will participate in the plan by assuming an active role in the review and size of renewable energy projects adjacent to their shorelines. Five regional planning agencies also are mandated seats on the Ocean Advisory Commission, including the Cape Cod Commission, Martha's Vineyard Commission, Merrimack Valley Planning Commission, Metropolitan Area Planning Council, and the Southeastern Regional Planning and Economic Development District, as appointed by the governor. Massachusetts was a founding member of the Northeast Regional Ocean Council and the plan envisions continuing the coordination of voluntary regional ocean plans that address regional issues. The plan also engages federal agencies. In addition to project-specific coordination with the feds, EEA contemplates continuing relations with the U.S. Environmental Protection Agency, National Marine Fisheries Service, U.S. Fish and Wildlife, U.S. Army Corps of Engineers, and the National Oceanic and Atmospheric Administration. EEA has also instituted a U.S. Minerals Management Service (MMS)-Massachusetts Task Force to coordinate on renewable energy projects in adjacent federal waters.

3. The third governance recommendation requested that the state identify and mitigate the effects of climate change. Data should be collected on indicators such as coastal flooding, coastal storms, sea level increase, salinity, and reduction of greenhouse gases. The state should also designate and inventory the location of tidal and wind energy.

The volume 2 baseline assessment is quite detailed and impressive. It devotes an entire chapter to the study of global climate change and possible effects on the ocean surrounding our state. The plan based on the scientific data in volume 2 designates two wind energy areas and raises the possibility of wave and tidal energy but concedes that current technology or a suitable location has yet to be developed. The Science Framework section of volume 2 acknowledges areas that require further research and data while detailing an ambitious five-year plan to study, among other subjects, renewable energy and climate change.

4. The fourth governance recommendation suggested the revision of or incorporation of the Ocean Sanctuaries Act into a comprehensive management plan. The Task Force also recommended coordination of several state agencies in promulgating clarified rules

for permitted and prohibited activities, and review standards for proposals within sanctuaries.

This recommendation is addressed in the plan by expanding the protections provided by the Ocean Sanctuaries Act. This is accomplished by defining uses, activities, or facilities with greater specificity and provides greater protection for the defined resource areas. As mentioned above, the plan also requires that all state regulations be harmonized with the new Ocean Management Plan. All interested state agencies are involved on the Ocean Team and initial review of all proposed developments originates with the Secretary of EEA and the Ocean Team. The clarified rules of permitted activities and the standard of review will be further discussed under the management recommendations.

Management Recommendations

1. The second management recommendation requested the establishment of marine protected areas and asked the state to identify and designate special, sensitive, unique estuarine and marine habitats for protection. This would include the habitats of marine mammals, birds, reptiles, soft corals, bottom plants and animals, sensitive fisheries, and other special ecosystems. The Task Force also recommended that the public and key state and federal agencies be involved in the identification and protection of these resources.

The plan creates three broad areas, prohibited, renewable energy, and multiuse. The prohibited areas are the same as the Cape Cod ocean sanctuaries, and all development in this area prohibited by the Ocean Sanctuaries Act is forbidden. The renewable energy areas are two areas in which utility scale wind development may be undertaken. The largest area is designated as the multiuse area. All uses, activities, and facilities allowed under the Ocean Sanctuaries Act are permitted. However, within the multiuse area the plan further identifies special sensitive and or unique marine or estuarine life and habitat or SSUs. SSU resource areas have their own siting and performance standards for uses, activities, and facilities. Specified uses are presumptively excluded from these areas, but a proponent of such a use may overcome this presumption under specific criteria (*see* Massachusetts Ocean Management Plan, vol. 1, ch. 2, pp. 2–4). Any proposed use is subject to an environmental impact review. SSU areas include the habitat for north Atlantic right, humpback, and fin whales; roseate and special concern terns, long-tailed ducks and leach's storm petrels, and colonial water birds; and sensitive hard/complex seafloor, eelgrass beds, intertidal flats, and important resource areas.

The plan also protects important water-dependent uses and commercial and recreational areas within state waters. These are important resources but siting and performance standards for uses, activities, and facilities are less strict than in SSU areas. Protected areas include areas of high commercial fishing, concentrated recreational fishing, concentrated commerce and commercial fishing traffic, and concentrated recreational boating (*see* Massachusetts Ocean Management Plan, vol.1, ch. 2, pp. 2–5).

2. The second management recommendation sought coordinated efforts to mitigate environmental impacts of development in state waters. Comprehensive management structure should include efforts to minimize unavoidable effects of some development. This can be accomplished by environmental impact review similar to land-based Massachusetts Environmental Policy Act review. The state should develop a priority list of marine restoration and remediation projects. In projects in which unavoidable environmental impacts are difficult to mitigate, developers may be required to undertake a restoration project from the state's list as a reasonable alternative to mitigate environmental impact.

This recommendation is addressed almost verbatim. The plan requires that development proposals in state waters that meet specified environmental review requirements must file at least an environmental notification form or in most cases an environmental impact review. The plan also establishes the Ocean Resources and Waterways Trust Fund, to be funded by fees assessed to projects that impact resources and impair uses. Half of the funds are funneled to affected or "host" communities so long as they are used to

restore or enhance marine habitat and resources associated with the project.

3. The fifth management recommendation requested the coordination of state agencies to review visual, cultural, and aesthetic impacts on state waters. The request suggested the interested state agencies should develop common criteria and standards for review and mitigation of such impacts. State agencies, through standardized review, should ensure that visual, cultural, and aesthetic impacts are fully understood and reviewed. This is addressed in the plan by a general prohibition of community scale wind energy projects within one mile of shoreline. No areas are currently designated as cultural or archeological but the scientific baseline assessment dedicates an entire chapter to researching the subject.

4. The sixth management recommendation suggested that the state should have an inventory of the uses and resources in the state's waters. These inventories should be up to date and catalogue all uses and emerging trends. The Task Force also requested that this information be GIS based and organized on maps and databases. All uses and resources should be illustrated, from the seafloor to the airspace above the water surface. This baseline assessment of uses will assist decision makers on future projects. Themes useful to ocean resource management should be used when characterizing use. The Task Force recommended cataloguing locations of physical structures and jurisdictional lines; industrial, commercial, and recreational transit; natural features including geology, habitat, circulation, wind and tidal currents; location of fisheries resources; natural resources such as wind or tidal areas; and trends in commercial, industrial, recreational, cultural, military, and homeland security.

This centralized and easily referenced information would be invaluable. Decision makers would be fully informed and make better decisions in regard to our ocean resources. This recommendation is also well addressed by the plan. As noted above, SSU and water-dependent use areas are well defined, described, and mapped. Each chapter has many GIS-based maps. All resources and uses are catalogued in these figures and maps.

Scientific Understanding Recommendations

1. The first scientific understanding recommendation made by the Task Force was that a marine and ocean resource advisory group should be created. The Task Force envisioned that the advisory group would be comprised of state, federal, academic, and marine and fishery scientists. The advisors would estimate species populations, evaluate habitat conditions, ascertain contaminant levels, identify emerging threats to ocean resources, and help develop management goals. This group would also be charged with compiling data, both historic and current, to assess improvements or degradation to resources. The purpose of this recommendation is to increase our understanding of estuarine and marine ecosystems, therefore leading to better resource management.

As mentioned above, the Ocean Management Plan, as mandated by the Ocean Act, establishes the Ocean Science Advisory Council. It consists of scientists and academics from universities, government, and advocacy groups. The baseline scientific assessment of the state's ocean waters gives us a portrait of our current understanding of uses and resources. The scientific framework creates goals for future research and study. It also details a five-year plan directing research to achieve stated goals of understanding.

2. Scientific understanding, the second recommendation, suggested a comprehensive ocean monitoring and research program that would cover both the environmental and the socioeconomic uses and characteristics of our ocean resources. The plan would evaluate the entire resource area as a whole, accounting for cumulative impacts from coastal alteration, fisheries, watershed, and natural changes in the ecosystem. The Task Force also recommended that the state become partners with other states, advocacy groups, and regional and federal agencies collecting similar data. These collaborative efforts between all interested parties will provide a platform for a more innovative approach to research needs.

This recommendation, intimately related to the last, would be fulfilled in many of the same ways. Volume 2 is a comprehensive analysis of all resources and uses in the state's ocean. It also regards the economic value of those activities. A catalogue of SSU areas lists the most sensitive habitats and marine life. The plan engages other environmental agencies as members of the Ocean Team and through ongoing relations with federal and regional agencies. Academic, scientific, and advocacy groups are engaged on the Ocean Advisory Commission and the Science Advisory Council. Future research plans are detailed in depth. This comprehensive and inclusive approach ensures the Secretary will make informed decisions on projects using the best science available.

3. The third scientific recommendation urges the Commonwealth to produce comprehensive, high-resolution seafloor habitat mapping. Existing and emerging technologies can collect data on vegetation characteristics, topography, and geology. This information can lead to comprehensive seafloor habitat mapping. Like the other scientific recommendations, the Task Force has suggested that the state take an active role in the process with regional and national organizations and agencies.

The plan fulfills this recommendation in several ways. Certain categories of seafloor are designated as SSU areas that are entitled to added protection. Hard and complex seafloor, areas of eelgrass beds, and intertidal flats all receive SSU designation. These areas are catalogued and mapped on GIS-based figures included in the plan. The scientific assessment on which the plan was based also details protected and sensitive seafloor areas and reports sediment quality and distribution.

Outreach Recommendations

1. The first outreach recommendation was that the Secretary of Energy and Environmental Affairs should commit to developing an ocean literacy and stewardship program that would target all social and economic groups with an emphasis on school age children. Encouragement of participation by interested advocacy groups, academic institutions, politicians, media outlets, and the general public should be a priority.

This recommendation is not directly addressed but many sections of the plan do incorporate some of the proposals. Interested advocacy groups play an active role in resource management under this plan. Fishing and environmental advocates retain permanent seats on the Ocean Advisory Commission and the Ocean Science Advisory Council. Politicians are involved by also holding seats on the Ocean Advisory Commission. Advocacy and regional planning agency appointments to the commission are made by the governor, further engaging political involvement. Academic institutions are also engaged by the Ocean Science Advisory Council. Specifically, two scientists are appointed from the University of Massachusetts. One is to be from the Dartmouth Campus School of Marine Science and Technology and the other from the Boston marine science faculty.

The general public has been involved from day one. The Ocean Management Task Force, in preparing their report and recommendations, held all meetings open to the public. It also published all materials on its Web site. The Task Force held six open meetings for public comment and received over 300 comments that are posted online. The first draft of the Ocean Management Plan was released on June 30, 2009, six months prior to the final draft to allow for extensive public comment as well. Five more public hearings were held followed by a 60-day public comment period in which another 300 comments were received. The final plan further involves the public. Routine updates to the plan require a 30-day public comment period. Formal amendments to the plan require a minimum of 60 days for public comment.

2. The second outreach recommendation made by the Task Force calls for the dissemination of all scientific information. The suggestion requested the cataloguing, indexing, and dissemination of ocean resource data. All data producers should make their data available through state-sanctioned means, and data should be posted online via state Web sites, web mapping tools, and added to publically available databases such as MassGIS, readily accessible to interested parties.

The plan does a great job in this regard. It meticulously details all scientific data in volume 2 and describes the origins of all scientific data, drawing from a plethora of environmental organizations, federal, state, and regional agencies. All data in the plan formulation are also catalogued and available in a data layer named the Massachusetts Ocean Resource Information System. The Executive Office of Energy and Environmental Affairs also maintains an Oceans home page that has full copies of the plan complete with all GIS-based figures and maps.

Conclusion

The Ocean Management Plan is a comprehensive well-written document. It regulates every square inch of ocean water within the jurisdiction of the state of Massachusetts. Information is easily accessible, logically organized, supplemented with visual aids, and easy to understand. It is based on an ambitious and centralized collection of data. It is very progressive in that it has the ability to evolve as new scientific data and better understanding become available.

The plan in most all cases categorically addresses the recommendations proffered by the Ocean Management Task Force. The only area that seems to be lacking is the fourth management recommendation that suggests that enforcement of coastal laws should be a high priority. It recommends that the Secretary of EEA should ensure adequate enforcement personnel and resources to provide sufficient enforcement of environmental laws. The Ocean Act and the Ocean Management Plan are void of appropriations or provisions for adding resources to the Massachusetts Environmental Police, the enforcement arm of EEA.

The plan is in its infancy and time will determine if it has addressed all the Commonwealth's coastal needs. It must still be incorporated into the Coastal Zone Management program and other environmental regulations. It will be an interesting process and intriguing to see how various agencies will adopt and implement the plan's provisions. The plan requires review every five years to coincide with the scientific framework's research goals. After the first five-year cycle would be a good time to assess the Ocean Management Plan and its effectiveness. We may also be able to see what projects are granted approval and what get denied. When we are out on the water we should be reassured that the state is trying to protect our common resources and yet foster sustainable and renewable resources.

Anthony Bowers *is a law student at the Southern New England School of Law. He can be reached for comment at captbowers@hotmail.com.*

THE SHIFTING TIDES OF FEDERAL FISHERIES MANAGEMENT IN MASSACHUSETTS: SOME ISSUES FOR CONSIDERATION

Amy J. Kocher Sluszka

Introduction

The purpose of this article is to call attention to recent changes in fisheries management at the federal level, and how those changes are being implemented at the regional and state levels. A case study from a Massachusetts fishery is discussed, and potential impacts on the industry are identified. The goal, through the use of a case study, is to highlight some of the perceived difficulties as our federal fisheries management adopts new regulatory standards to stem perceived overfishing.

Background: NOAA Fisheries Service: Scope

According to the National Oceanic and Atmospheric Administration (NOAA), a number of U.S. fisheries are underperforming biologically and economically and require consideration of additional tools to improve management effectiveness (http://www.nmfs.noaa.gov/sfa/domes_fish/catchshare/index.htm.). "Catch share" is a general term that encompasses any fishery management strategy that allocates a specific portion of the total allowable fish catch to individuals, cooperatives, communities, or other entities. Basically, NOAA is requiring that U.S. fisheries develop some form of a management plan. It will not dictate its exact parameters, but an allocative gauge must be established. "Catch share" is a broad term used for any quota-based management plan.

NOAA's self-proclaimed goals for allocative measures are to

1. help reduce any administrative or organizational impediments to the consideration of catch shares;
2. inform and educate stakeholders of the different options and capabilities of catch share programs; and
3. help organize collaborative efforts with interested councils, states, communities, fishermen, and other stakeholders on the design and implementation of catch share programs. (*Id.*)

Example: The Impact of Federal Regulatory Changes on a Massachusetts Fishing Industry: The Summer Flounder (Fluke)

Fishing is major part of New England's economy and culture. Historically, the summer flounder has been among the most important commercial and recreational flatfishes on the East Coast (http://www.mass.gov/dfwele/dmf/recreational fishing /fluke.htm). Commercial catches in the southern part of the fluke's range were stable from the 1950s to the early 1970s, while those in the northern portion of its range persistently declined. (*Id.*) In 1974 it was estimated that total commercial and recreational harvests exceeded a level that should be sustained for any extended period of time. (*Id.*) Despite this warning, the total harvest exceeded the 1974 level in the 1980s. (*Id*.)

Recreational fishing has always been a major component of the total fluke harvest, often exceeding commercial catches in the mid-Atlantic states. (*Id*.) Coastally, the recreational catch ranged from twenty-six to sixty percent of the total harvest between the years 1979 and 1984. (*Id*.) Historically, the Great South Bay of Long Island has supported incredible recreational fishing. (*Id*.) It reported as many as 2,000,000 fluke landed yearly during the late 1950s and early 1960s. The total coastal recreational catch from 1979 to 1984 ranged from 5,000,000,000 to 18,900,000,000 fish. (*Id*.)

Although population levels in the 1980s were somewhat higher than they were in the 1960s and 1970s, persistently high harvest levels may once more reduce this species' abundance. (*Id*.) In 1982, the Atlantic States Marine Fisheries Commission developed a Summer Flounder Management Plan that was adopted by coastal states from Massachusetts to North Carolina. (*Id*.) This plan established a minimum legal size limit of fourteen inches to protect this important coastal fishery resource. (*Id*.) But, this size limit is more stringent for some New England States' regulations for recreational fishing. In Massachusetts, the 2010 recreational minimum size for fluke is 18.5 inches, and in Rhode Island, it is 19.5 inches.

The federal minimum fish size for fluke is provided in Fishery Conservation and Management § 648.103 **Minimum fish sizes.**

(a) The minimum size for summer flounder is 14 inches (35.6 cm) TL for all vessels issued a moratorium permit under § 648.4 (a)(3), except on board party and charter boats carrying passengers for hire or carrying more than three crew members, if a charter boat, or more than five crew members, if a party boat

(b) Unless otherwise specified pursuant to § 648.107, the minimum size for summer flounder is 17 inches (43.2 cm) TL for all vessels that do not qualify for a moratorium permit, and charter boats holding a moratorium permit if fishing with more than three crew members, or party boats holding a moratorium permit if fishing with passengers for hire or carrying more than five crew members.

Effects on the Industry

Commercial fishermen are feeling the strain of the new regulations. Federal regulations now require fishermen to obtain an expensive permit if they want to fish more than seventy-three days per year (Ariana Green, *Move to Redefine New England Fishing*, N.Y. TIMES, May 30, 2009). The new permits can cost up to a half a million dollars. This is a tough fact for anglers to swallow who have been fishing year round for thirty-five or more years. (*Id*.) To protect declining stocks, the government has been increasing efforts to restrict the number of groundfish species that can be caught per day and narrowing the number of days New England fishermen can be out. (*Id*.)

Some feel that the federal regulations on fishing are too strict. Federal regulators established a registration system so that they can keep track of how many fish anglers are catching. Commercial fisherman must pay for federal licenses and report what they catch. Most reporting must take place within twenty-four hours of the catch. These licenses do not come cheap and many are faced with the question of whether or not they can make a large enough profit to justify the costs of operating. The added license fees and the burden of having to report a day's catch have left many fishermen unhappy.

Recreational anglers are also regulated. Some fear that certain fish, such as bass, will no longer be available for recreational fishing. Many fear that the stricter regulations will cause several species to follow the same path as the tuna fishery. If commercial fishermen take their limit and the quota has been reached, the federal regulators will close the season, leaving nothing for the recreational fisherman. Despite the annual management plans provided by the state departments, once the quota has been reached, the season is over.

New England and Sector Management

The New England Fishery Management Council's sector policy defines a "sector" as a group of persons holding limited access vessel permits under the fishery management plan through which the sector is being formed, who have voluntarily entered into a contract and agree to certain fishing restrictions for a specified period of time, and which has been granted a total allowable catch in order to achieve objectives consistent with the fishery management plan goals and objectives (http://www.nero.noaa. gov/sfd/sfdmultisector.html). A "sector" is an example of what the NOAA defines as a "catch share." The "sector" approach is New England's interpretation of a fishery management plan. The use of sectors should reduce an angler's individual overall cost for permits and reduce regulatory discarding. Its goal is to conserve and manage the resources and prevent overfishing while also supporting the local fishing community.

The most recent discussion in the New England fishing community is regulations implementing measures approved under Amendment 16 and Framework Adjustment 44 to the New England Multi-species Fishery Management Plan, effective May 1, 2010. Amendment 16 was developed by the New England Fishery Management Council to revise management measures necessary to end overfishing; rebuild overfished stocks; and mitigate the adverse economic impacts of increased effort controls based upon the results of the latest stock assessment; and to establish a mechanism to specify annual catch limits and accountability measures for each stock managed by the Fishery Management Plan to comply with the Magnuson-Stevens Fishery Conservation and Management Act. FW 44 specifies the actual annual catch limits for fishing years 2010–2012, revises certain Amendment 16 measures, and specifies other

measures for the U.S./Canada Management Area and associated special access programs.

Many Massachusetts fishermen attempted their own mitigation plan. To increase the number of days that they could fish, they would delay renewal of their federal permits and, in the interim, fish under the restrictions of their state permits. Both federal and state officials had concerns that this loophole was contributing to overfishing in Massachusetts waters. In 2006, in response to this loophole, Massachusetts enacted 322 Mass. Code Regs. § 7.01(4)(a).

Under this regulation, fishermen must choose between holding a federal permit or a state permit to fish in state waters. The state's groundfish endorsement allows permit holders to take species of groundfish from Massachusetts waters. Now, fishermen who hold both a state permit and a federal permit will not be given a groundfish endorsement, unless and until they permanently surrender their federal permit. The state permit limits the quantity of fish taken, while federal permits limit the number of allowable fishing days per year. Two commercial fishermen, Brian Roche and Douglas Marcella, challenged the constitutionality of this regulation (*Roche v. Director of the Div. of Marine Fisheries*, No. 09-P-447, May 18, 2010). They further claimed that the state regulation is "illegal, arbitrary and capricious under G.L. c. 30A." (*Id.*) A superior court judge and the Supreme Judicial Court of Massachusetts found for the defendant, denying the plaintiff's claims.

Conclusion

In sum, the federal government, NOAA, and the state regulators on paper all agree that their goals are for conservation management and sustainable fisheries. Although their specific management plans may differ, they are all very similar and revolve around quotas. Each plan uses licenses, minimum fish sizes, catch limits, and gear restrictions to achieve their goals. Every management plan is assessed and reassessed to see if it is working.

Both commercial and recreational anglers oppose the regulations because, for them, it means higher operating costs and more restrictions. Local fishermen feel that the federal regulations are unfair and keep them from making a living. Recreational fishermen feel that the quota management plans are unfair because the commercial fishermen will fish the quota and there won't be anything left for them to fish. They feel that the costs are too great and the fish size and bag limitations are too strict and are unobtainable.

The larger question that needs to be answered is whether or not these regulations will achieve the goals they were implemented to meet. Will these regulations protect resources from overfishing? These are questions that can not be answered yet. Many of these regulations are new, and several are in the process to be amended. Only time and further research will tell if these management plans will create maintainable fish stocks and reduce overfishing. In the meantime, it is the fishermen who will have to pay the price.

Amy J. Kocher Sluszka *is a 2010 graduate of the University of Massachusetts School of Law, Dartmouth. She can be reached for comment at akocher@snesl.edu.*

THE NATIONAL MARINE SANCTUARIES ACT: A SANCTUARY FOR CLIMATE CHANGE LITIGATION?

Jane Cynthia Graham

Introduction

Beneath the waters of the federally designated national marine sanctuaries off the coasts of Florida, California, and Hawaii, among other locations, lives a variety of coral, fish, hermit crabs, sharks, and other species. Due to the effects of ocean acidification and coral bleaching from anthropogenic climate change, these ecosystems are threatened. So far, the Endangered Species Act has been the main legal tool to protect individual species from anthropogenic climate change. For example, elkhorn and staghorn corals were recently listed as threatened species under the Endangered Species Act, with the threats based on elevated sea surface temperature, increased atmospheric carbon dioxide levels, and rapid sea level rise. In February, the National Marine Fisheries Service found substantial scientific or commercial information that eighty-two other species of corals could be threatened or endangered due to ocean warming and acidification. 50 C.F.R. §§ 223–24. However, another legal tool yet to be attempted is via the National Marine Sanctuaries Act (NMSA), a mechanism protecting ecosystems instead of individual species. This article will describe the background of the National Marine Sanctuaries System, and discuss whether there could be a potential cause of action by the government against greenhouse gas emitters under NMSA.

Designation as a National Marine Sanctuary

There are fourteen listed national marine sanctuaries in the United States. NOAA National Marine Sanctuaries, http://sanctuaries.noaa.gov/ (last visited Mar. 29, 2010). Congress created the National Marine Sanctuary Program in 1972, in response to the growing awareness of the environmental and cultural values of coastal waters. The National Marine Sanctuaries Act (NMSA) gives the Secretary of Commerce the authority to designate specific areas as national marine sanctuaries to promote comprehensive management of their ecological, historical, recreational, and aesthetic resources. *Id.* The National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management, is responsible for the management these marine sanctuaries. *Id.*

As an example of how the individual national marine sanctuaries are established, the following is a short background of the Florida Keys National Marine Sanctuary (FKNMS). The FKNMS was signed into law on November 16, 1990, designated by an act of Congress called the Florida Keys National Marine Sanctuary and Protection Act (FKNMSPA). Florida Keys National Marine Sanctuary Final Regulations, 15 C.F.R §§ 922, 929, and 937 (1997). This plan directed the Secretary of Commerce to develop a comprehensive management plan and regulations for the sanctuary pursuant to sections 303 and 304 of NMSA. NMSA authorizes the development of management plans and regulations for national marine sanctuaries to protect their conservation, recreational, ecological, historical, research, educational, or aesthetic qualities. *Id.* As part of this program, a comprehensive management plan and water quality protection program were created for the sanctuary, in concert with a citizen's advisory council and several federal, state, and local government agencies. Management in the state and federal waters is achieved through a cooperative agreement with the State of Florida Department of Environmental Protection and the Florida Fish and Wildlife Conservation Commission. Under the NMSA designation, the FKNMS has very detailed protections and monitoring.

Cause of Action Under the National Marine Sanctuaries Act

One of the cornerstones of the National Marine Sanctuary Program is the National Marine Sanctuaries Act. NMSA imposes strict liability on "any person who destroys, causes the loss of, or injures any sanctuary resource. 16 U.S.C. § 1443. That person is liable for response costs and damages resulting from such destruction, loss, or injury. 16 U.S.C § 1431. The Secretary of Commerce brings the action, and may seek damages from and injunctions against anyone

who destroys or injures sanctuary resources. 16 U.S.C. §§ 1437 and 1443. Unlike the Endangered Species Act, NMSA does not have a citizen suit provision. Endangered Species Act, 16 U.S.C § 1540(g). This means only the government can take this action. The government has the right to full recovery for response and cleanup costs. ("Response costs" include costs of actions taken to minimize the destruction of sanctuary resources. § 1432(7). "Damages" include compensation for (1) the cost of restoring, replacing, or acquiring the equivalent of a sanctuary resource and the interim loss value of the resource pending restoration; (2) damage assessment costs, and (3) reasonable monitoring costs. 16 U.S.C. § 1432(6). A "sanctuary resource" is broadly defined as "any living or nonliving resource of a national marine sanctuary that contributes to the conservation, recreational, ecological, historical, research, educational, or aesthetic value of the sanctuary." 16 U.S.C. § 1432(8). A person may avoid liability under section 1443 only if he or she can show that (1) the damage was caused by an act of God, an act of war, or the act or omission of a third party, (2) the damage was caused by an activity authorized by federal or state law, or (3) the destruction, loss, or injury was negligible. 16 U.S.C. § 1443(a)(1) and (3).)

Proving Causation: The Pink Elephant Lingering in the Back of the Room

Due to the nature of climate change, the major challenge will be in tracing an injury to the sanctuary resources of the national marine sanctuaries from climate change to an action of a defendant. The plain language of NMSA does not require causation, but the government must prove that defendant "destroys, causes the loss of, or injures" the sanctuary resource. Thus, while causation does not need to be proven in name, in practice, a connection is still an integral element to the case.

There is no set precedent yet for whether emitters of greenhouse gases can be held liable for causing detrimental effects or injury associated with climate change. However, at various stages of the pleading, including standing and political question, a connection has been satisfied. *Massachusetts v. EPA*, 549 U.S. 497 (2007), *Connecticut v. American Electric Power Co.*, 582 F.3d 309 (2d Cir. 2009). In *Massachusetts v. EPA*, the court found that Massachusetts had standing where EPA failed to regulate greenhouse gas emissions from new cars. *Massachusetts*, 549 U.S. at 525. Massachusetts had a personal stake in the outcome because the rise in sea levels associated with global warming had already harmed and will continue to harm the Massachusetts coastline. *Id*. at 521. Likewise, in *Connecticut v. AEP*, eight states, New York City, and three land trusts separately sued the same six electric power corporations that own and operate fossil-fuel-fired power plants in twenty states, seeking abatement of defendants' ongoing contributions to the public nuisance of global warming. *Connecticut*, 582 F.3d at 324. The court found the plaintiffs had sufficiently alleged injury and that it was "fairly traceable to the actions of the defendant. *Id*. at 342.

In this case, since the national marine sanctuaries are federally protected areas, the federal government might argue they have a personal stake in the outcome. Evidence of ocean acidification and coral bleaching could be presented to show the harmful effects of anthropogenic climate change. While it is unclear whether this would win at the trial level, with strong scientific evidence and data, the government could probably satisfy Article III standing and get through the courthouse door. However, the *Connecticut* court stated, "This is an issue best left to the rigors of evidentiary proof at a future stage of the proceedings, rather than dispensed with as a threshold question of constitutional standing." *Id.*

On the other hand, ocean absorption presents a serious challenge in finding causation. How can a specific percentage of CO_2 emitted from certain company be tied to a specific coral reef at a certain time? Coral bleaching studies show a link between an increase in sea temperature and bleaching events, http://www.reef.edu.au/ohg/res-pic/HG%20papers/Hoegh-Guldberg%201999.pdf. Due to weather patterns and ocean currents, carbon dioxide emitted off the coast of Louisiana might eventually settle and be absorbed over a coral reef in the Florida Keys.

In a further attenuated step, if the government wanted to prove harm to species that depend on the coral reef for their habitat, such as hermit crabs and fish, they would have to show how the ocean acidification or coral bleaching specifically caused the harm to the species. Government scientific experts would need to show detailed models to demonstrate a connection and convince a trier of fact. While this is not an insurmountable challenge, it will require rigorous and convincing detail on the part of the experts.

What Exactly Is the Injury and How Would It Be Calculated?

If the government can show a causation connection between greenhouse gas emitters and the harm to a national marine sanctuary through anthropogenic climate change, the government then must demonstrate the injury to the sanctuary resources of a national marine sanctuary.

Most cases interpreting injuries through NMSA involve direct damage to the sanctuary through a collision with a boat or other object in the water, such as a ship running into a coral reef. *U.S. v. Great Lakes Dredge & Dock Co*., 259 F.3d 1300 (11th Cir. 2001), *U.S. v. M/V Miss Beholden*, 856 F. Supp. 668 (S.D. Fla. 1994). *U.S. v. Marlow*, 2009 WL 3362075 (M.D. Fla. 2009). However, nothing in NMSA states that there must be direct damage. In the *Fisher* case, the harm was one step removed from direct impact, where the defendant's treasure hunting instruments caused sediment in the water to be shifted on sea grass blades, and the sediment caused the damage to the sanctuary resource. *U.S. v. Fisher***,** 977 F. Supp. 1193, 1197 (S.D. Fla. 1997). Perhaps this precedent could be used to argue that NMSA allows for somewhat attenuated causes. Courts have interpreted the text in NMSA by its plain meaning, and have not imposed additional qualifications to the plain words of the statute where they were not there. *U.S. v. M/V Cosco Busan*, 557 F. Supp. 2d 1058 (N.D. Cal. 2008). Thus, it might be possible the statute leaves the door open for a possible cause of action involving a more indirect impact, such as the harm caused from greenhouse gas emitters.

There is not a lot of guidance for calculating what the injury is under NMSA. NMSA does not have a specific definition for "injury" in section 1432. However, the regulations of individual national marine sanctuaries do offer some guidance. Florida Key National Marine Sanctuary, 15 C.F.R §§ 922, 929, and 937. For example, under § 922.163 under the FKNMSPA, the following is prohibited: "(ii) Discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter that subsequently enters the Sanctuary and injures a Sanctuary resource or quality." *Id.* Since discharge could be beyond the boundary, the defendant does not have to directly dump a bunch of carbonic acid on a patch of corals. However, it gets a little hairy with the clause, "any material or other matter that subsequently enters the Sanctuary." If a greenhouse gas emitter discharges carbon dioxide, and it turns into carbonic acid that enters the sanctuary, does that count as "other matter"? Maybe a chemist expert witness could argue that it does, and causes ocean acidification. This would be much harder, if not impossible, to argue for coral bleaching, where the damage is done by heightened temperature, not the carbon. However, section 922.164(d)(1)(ii) prohibits "possessing, moving, harvesting, removing, taking, damaging, disturbing, breaking, cutting, spearing, or *otherwise injuring* any coral." *Id.* The term "otherwise injuring" could be argued to apply to the injuries sustained from both ocean acidification and coral bleaching. Somewhere down the road, this could come down to Justice Scalia whipping out his favorite dictionary to see what "injures" means in this context.

It is especially important that the injury be properly quantified since NMSA is a statute directed toward response and cleanup. If a coral is dying, how do you calculate the injury if you cannot tell exactly what harm was from coral bleaching, disease, or some other unknown factor related or unrelated to greenhouse gas emissions? These arguments will be won and lost on the facts on the case. It would be helpful to look at one event, such as the 2005 coral bleaching, and try to use that as the injury, rather than the precipitous decline of coral health over the past decade, which would become extremely difficult to determine. Nevertheless, the science is strong that links greenhouse gas

emissions with the demise of coral. Once an event is chosen, the actual damages could be determined in a number of ways. *Puerto Rico v. The SS Zoe Colocotroni*, 628 F.2d 652 (1st Cir. 1980); *see also U.S. v. Fisher*, 977 F. Supp. 1193 (S.D. Fla. 1997), *U.S. v. Great Lakes Dredge and Dock Co., 259 F.3d 1300 (11th Cir. 2001)*. Choosing and calculating the injury would be a challenge, but could be doable with the right coral reef destruction event and expert witnesses.

Choosing Defendants

If causation and injury can successfully be calculated (at least arguably), the next step is figuring out the correct defendants to hail into court. In a situation where there are multiple parties who contributed to the damage from greenhouse gas emissions, the circuits are split on who is an appropriate defendant. In a recent class action case in the Fifth Circuit, private home owners alleged that greenhouse gases emitted by the defendants, an array of oil and coal companies, electric companies, and chemical manufacturers from across the nation, had demonstrably changed the earth's climate. This consequently increased the frequency and intensity of hurricanes, resulting in Hurricane Katrina, which destroyed their property. *Comer v. Murphy Oil USA*, 585 F.3d 855, 859 (5th Cir. 2009) (On Feb. 26, 2010, the 5th Circuit voted to rehear the case en banc. *See* http://www.ca5.uscourts.gov/opinions/pub/07/07-60756-CV1.wpd.pdf.) The defendants argued that the causal link was too attenuated for the plaintiffs to have standing, since their greenhouse gas emissions were only a small portion of the emissions worldwide. In a striking move, the Fifth Circuit agreed with the plaintiffs, and interpreted the *Massachusetts v. EPA* precedent to mean that there is a plausible link between man-made greenhouse gas emissions and global warning. *Comer*, 585 F.3d at 865. According to the *Comer* ruling, the government could potentially name every defendant listed in *Comer* as also causing "injury or destruction" to the Florida Keys coral reefs.

However, the Northern District of California in *Village of Kivalina v. ExxonMobil* came to a different conclusion. In *Kivalina*, an Eskimo village in Alaska brought a nuisance claim against twenty four different oil and gas companies for causing greenhouse gas emissions that melt the arctic ice. This caused storm surges on the coast, and made the village uninhabitable. *Native Village of Kivalina v. ExxonMobil Corp.*, 2009 WL 3326113, 1 (N.D. Cal. 2009.) The court opined that traceability requires that the plaintiffs be within a certain proximity of the defendants, a "zone of discharge," and that the geographic proximity in this case was not sufficient. *Kivalina*, 2009 WL 3326113, 14. Under the *Kivalina* standard, the defendants in our NMSA case would need to have closer proximity.

The *Comer* and *Kivalina* cases are different from this potential suit because the former cases were private tort actions, whereas the latter is a government statutory action. However, due to the lack of current case law on choosing greenhouse gas defendants in lawsuits, it is likely a court would take these cases into consideration. Since *Comer* is an appellate decision and *Kivalina* is only a district court opinion, it is arguable that *Comer* would trump *Kivalina*, especially in the 11th Circuit, which used to be part of the 5th Circuit. If that were the case, the government could name as many greenhouse gas emitters as it likes, from all over the country. However, if the government really wanted to be on the safe side and follow the "zone of discharge" standard, it would be possible in Florida as well. In fact, the Florida electric industry had the dubious distinction of being ranked fourth in the country for carbon dioxide emissions in 2007. U.S Energy Information Administration, Florida Nuclear Energy, http://www.eia.doe.gov/cneaf/nuclear/page/at_a_glance/states/statesfl.html (last visited Dec. 18, 2009). Furthermore, Florida's cement industry is large, and the state's largest cement factory in Medley (just northwest of Miami), was approved a 36 percent increase in production of clinker, a process that creates a high amount of greenhouse gas emissions. Florida's Largest Cement Plant to Increase Production, January 18, 2006, http://www.buildingonline.com/news/viewnews.pl?id=4804 (last visited Dec. 18, 2009). If that is not enough, Turkey Point Nuclear Generating Station is on the shores of Biscayne Bay, shockingly close to the FKNMS. U.S Energy Information Administration, Turkey Point Nuclear Generating Station, http://www.eia.doe.gov/cneaf/nuclear/page/at_a_glance/reactors/turkeypoint.html (last visited Dec.

18, 2009). Clearly, a deeper investigation would need to be done before any defendants were named in an action like this. On the surface, it looks like there could be potential for a variety of defendants.

What Would Be the Remedy?

Under 16 U.S.C. § 1443, the defendants would be strictly liable for (1) the amount of response costs and damages resulting from the destruction, loss, or injury; and (2) the interest on that amount calculated in the manner described under section 2705 of title 33. The exact dollar amount would be a matter left to the government to determine. Since there could potentially be a large number of defendants, the question of joint and several liability could also arise.

Under current NMSA law, where the damage is indivisible between two defendants, and each defendant is the legal cause of the damage, each one is liable jointly and severally. *U.S. v. Great Lakes Dredge & Dock Co*. 259 F.3d 1300 (11th Cir. 2001). Courts have looked to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Clean Water Act (CWA) cases for guidance on this matter. *United States v. M/V Big Sam*, 681 F.2d 432, 438–39 (5th Cir. 1982) (CWA); *Redwing Carriers v. Saraland Apartments*, 94 F.3d 1489, 1512–13 (11th Cir. 1996). A defendant could argue that the harm should be apportioned between itself and the other defendants. Not all harms are capable of apportionment, however, and CERCLA defendants seeking to avoid joint and several liability bear the burden of proving that a reasonable basis for apportionment exists. *Burlington Northern and Santa Fe Ry. Co. v. U.S.*, 129 S. Ct. 1870 U.S. (2009). Thus, a single defendant would be liable for all the damages and costs to the national marine sanctuary, unless the defendant proves a reasonable argument for apportioning the costs.

Another option the government has is to impose a civil penalty on the greenhouse gas emitter under 16 U.S.C § 1437(d). According to this clause, the United States can impose a civil penalty of "not more than $ 100,000 for each such violation, to be assessed by the Secretary. Each day of a continuing violation shall constitute a separate violation." 16 U.S.C. § 1437(d). Neither the statute nor regulations make it clear as to what constitutes a separate violation. In this particular case, would each puff of carbon dioxide constitute a violation, or would the buildup of carbon dioxide emissions over a period of time count as a single violation?

Imagine if each day constitutes a separate violation, greenhouse gases pumped out every day are considered a "continuing violation," and there is a maximum $100,000 fine. In 10 days the greenhouse gas emitter could be liable to the government for $1,000,000. If fines ever did become this obscenely high, a court would probably temper them. Nevertheless, according to the plain text of the statute, this type of fine could occur.

The final option would be an injunction, pursuant to 16 U.S.C. § 1437(j). According to this clause, if the Secretary finds that there is imminent risk of loss of or injury to a sanctuary resource, the "Attorney General, upon his request, shall seek to obtain such relief as may be necessary to abate such risk or actual destruction, loss, or injury, or to restore or replace the sanctuary resource, or both." 16 U.S.C. § 1437(j). This could be the most useful remedy, as it would cause a greenhouse gas emitter to cease its operations outright. However, the statute allows courts to balance in the public interest the equities require. *Id.* For greenhouse gas emitters to cease operations could put thousands of people out of jobs. However, perhaps a judge would order a greenhouse gas emitter to curb its emissions by a certain percentage, in the form of an injunction.

Defenses

The Sanctuaries Act has very limited defenses for the defendant. According to 16 U.S.C. § 1443(a)(3)(A): A person is not liable under this subsection if that person establishes that (A) the destruction or loss of, or injury to, the sanctuary resource was caused solely by an act of God, an act of war, or an act or omission of a third party, and the person acted with due care; (B) the destruction, loss, or injury was caused by an

activity authorized by Federal or State law; or (C) the destruction, loss, or injury was negligible.

These statutory defenses are exclusive. They were modeled after those enumerated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Oil Pollution Act of 1990 (OPA), and the Clean Water Act (CWA). *Marlow,* 2009 WL 3362075. The defendant has the burden to show the defense.

A greenhouse gas emitter slapped with this lawsuit could use a number of these defenses. First, it could argue that the coral's injury was an act of god, and that the warming of the earth is a natural phenomenon. However, a 2005 Florida district court case based on a federal statute that included the act of god defense held that if an act of god is reasonably foreseeable and the defendant does not take reasonable precautions, this defense will not succeed. *Fischer v. Neraida*, 2005 U.S. Dist. LEXIS 41944 (S.D. Fla. 2005). Here, if the government presents evidence of climate change, it could be arguable that damage to coral reefs is a foreseeable harm from pumping carbon dioxide into the air.

The next potential defense is that the injury was caused by an act authorized by the federal or state government. Here, the greenhouse gas emitter might say that it received permits to continue its operations from different federal agencies. Do the permits specifically state that the emitter can release carbon into the atmosphere? This issue could be won or lost on the facts. There is currently no reported case law on this defense in regard to NMSA, so this defense is wide open.

Finally, the defendant could argue that that the destruction, loss, or injury was negligible. This defense would come down to the exact facts of the case, and the exact injury to the coral. If the case was about a severe coral bleaching event that happened in the course of months, this defense would probably not hold. However, in a case where there are gradual effects of ocean acidification on the wildlife of the FKNMS, the effects might be considered negligible if they spanned a long enough period of time. Since there is no case law on this defense in NMSA, we are in unchartered waters.

Is a NMSA Claim Worth Pursuing?

There are several elements to NMSA that could make it an attractive tool for the government. First of all, the statute imposes strict liability, which means all the government has to do is show that the defendant caused injury or destruction to the sanctuary resource. *M/V Miss Beholden*, 856 F. Supp. 668; *see also Marlow*, 2009 WL 3362075. Once the government pursues this cause of action, the only way the defendant can escape liability is through a limited number of defenses, which are explicit in the statute. Also, this act protects all resources in a sanctuary, from the coral to the sea grass. In contrast, the Endangered Species Act's protection focuses on specific species, and if the species is lucky, it might get a critical habitat designation. 16 U.S.C. § 1532(5)(b), 1533(c). Furthermore, unlike the Endangered Species Act, which has a cap of $25,000 for civil penalty fines, there is a $100,000 cap on civil penalties, and there is absolutely no cap on damages for response and cleanup under NMSA. 16 U.S.C. § 1437(d)(1).Instead, the government will penalize defendant the entire cost of response and cleanup.

While most of the elements are satisfied, the main challenge will be to prove causation and injury. Perhaps courts will address this issue in the future. In sum, a cause of action based on NMSA against greenhouse gas emitters for damage caused by climate, while problematic, has potential to be a useful tool in the fight against climate change.

The author would like to thank Prof. Patrick Parenteau and Prof. Martha Judy of Vermont Law School and Chad McGuire for their insightful advice, comments, and support on this article.

Jane Cynthia Graham *is a licensed attorney in Florida and an environmental law LL.M. student at Vermont Law School. Ms. Graham received her J.D. from the University of Miami School of Law. She can be reached for comment at janecynthiagraham@gmail.com.*