New Decisions Affirm Municipal Authority to Prohibit Hydraulic Fracturing Through Zoning Ordinances

Also,

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Cover page photograph of a Marcellus shale gas well in Lawrence County, PA, courtesy of the Westminster Cable Network.

Contents page photograph of a sunset on Bethany Beach in Delaware, courtesy of Bill Lynch.
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New Decisions Affirm Municipal Authority to Prohibit Hydraulic Fracturing Through Zoning Ordinances

Jesse E. Hardval

Increasing atmospheric carbon dioxide concentrations and the ensuing search for climate friendly energy sources have led to heightened interest in natural gas resources over the last several years. The increase in natural gas extraction efforts, namely hydraulic fracturing, has led to new and restrictive legislation by state and local governments. This article examines two recent opinions that help to better define local authority within the natural gas regulatory schemes of New York and Pennsylvania.

Background
As the country searched for a way to satisfy its ever increasing energy requirements, the potentially plentiful reserves of natural gas trapped within the Marcellus, Utica, and Devonian shale formations tempted the natural gas industry. The gas, however, was unreachable using traditional extraction techniques. To access the resources, the industry looked to a new technique that couples horizontal drilling with hydraulic fracturing. Hydraulic fracturing, commonly known as fracking, is a natural gas...
recovery process in which pressurized fluids are used to release small pockets of trapped natural gas from gas containing strata. Horizontal drilling allows for the recovery of natural gas that would not be reachable with conventional drilling techniques. Fracking fluid, generally containing water, sand, and chemicals, is then pumped into the well and pressurized until the shale formation is fractured. The fracturing releases trapped natural gas from the shale. This gas rises up the well and is collected at the well head. The vertical well is cased with steel and cement in order to lessen the chance that any of the fracking fluid escapes into the surrounding environment.

When burned, natural gas releases less carbon dioxide and sulfur dioxide than oil or coal. This fact, combined with the advances in drilling technology that allow the exploitation of rich shale gas reserves in the eastern United States, sparked the push toward conversion from oil and coal to natural gas for uses from electricity generation to automobile fuel. Along with lower \( \text{CO}_2 \) and \( \text{SO}_2 \) emissions, energy security resulting from less dependence on foreign energy sources is a potential positive of local natural gas production.

Hydraulic fracturing is not without its negative environmental consequences, however. Potential negative effects include, but are not limited to, permanent removal of water from the system, production of contaminated wastewater, increased seismic activity, ground and surface water contamination due to well casing failures, and negative effects resulting from well pad and access road construction. Additional effects could include habitat loss; habitat fragmentation; invasive species introduction; soil compaction; and, negative water quality effects, like increased turbidity, increased temperature, and eutrophication.

New York

With Marcellus, Utica, and Devonian shale formations within its borders, New York has experienced an increased natural gas industry presence in recent years. Seeing the increase in drilling activities and having knowledge of the potential negative effects, two New York municipalities, Dryden and Middlefield, sought to prevent gas wells from springing up within their borders. Accordingly, they passed zoning ordinances that prohibited oil and gas drilling within their limits. Challenges by members of the natural gas industry ensued.

In Matter of Wallach v. Town of Dryden the New York Court of Appeals addressed the issue of whether the suppression clause of New York’s Oil, Gas, and Solution Mining Law (OGSML) preempted the municipalities’ authority to regulate zoning under the “home rule.” The “home rule” grants local governments the authority to govern itself in certain areas without intervention from the state and is a concept present in many state constitutions. The “home rule” provision of the New York State Constitution gives local governments the power to adopt and amend local laws. Even though the New York Legislature and courts have recognized that land use regulation is one of the most significant local government powers, the home rule does not allow local land use ordinances that conflict with the state constitution or general laws. Based on this, New York precedent dictates that courts will overturn a local zoning ordinance only where there is a clear expression of legislative intent to preempt local control over land use.

In making its determination of whether such intent existed, the court first examined the plain language of the OGSML. The OGSML contains a suppression clause, which states that the OGSML supersedes all local laws and ordinances relating to the regulation of mining industries. The natural gas industry argued that the clause preempted any local zoning that prohibited fracking, because such zoning is, in effect, regulating the industry. The court disagreed. It held the suppression clause only preempted local ordinances that regulate the actual operations of the industry. Local zoning restrictions, do not seek to regulate the actual operations of the mining industry. Instead, the zoning provisions regulate a different aspect, the use of land within the town.

The Natural Gas Industry Argued That the Clause Preempted Any Local Zoning That Prohibited Fracking, Because Such Zoning Is, in Effect, Regulating the Industry.

Examining the statutory scheme, the court found that the OGSML is concerned with the New York State Department of Environmental Conservation’s (DEC’s) regulation and authority regarding the safety, technical, and operational aspects of oil and gas activities. Thus, the court’s reading of the suppression clause fits within this legislative framework since it invalidates local laws that intrude on the DEC’s regulatory oversight. The court found that the zoning plans do not intrude on this oversight, and so are allowed under the statutory scheme.

Finally, the court found that nothing in the legislative history expressed intent for the OGSML to preempt local zoning laws. The history only made clear that the OGSML’s purpose was to ensure that the DEC had the power to regulate the technical operations of the industry.
As a result, the history showed that zoning laws, which regulate land use, were not meant to fall under the scope of the OGSML’s suppression clause, and thus are not preempted by the OGSML.

Pennsylvania
Pennsylvania’s oil and gas regulatory statute, commonly known as Act 13, is more expansive in scope than New York’s OGSML. Unlike the OGSML, Act 13 contained provisions that forced municipalities to allow gas wells in all land use zones, even residential zones. However, in a prior opinion, the Pennsylvania Supreme Court held that those provisions of Act 13 were unconstitutional. Some otherwise valid provisions state that local governments may not pass zoning ordinances that conflict with the technical regulations of Act 13. In order to determine if these provisions should also be struck from the law according to severability principles, the Pennsylvania Supreme Court remanded the case to the Commonwealth Court.

The doctrine of severability allows a court to remove any unconstitutional provisions from a statute without having to reject the entire statute. If otherwise valid portions of the statute are “essentially and inseparably connected with, and so depend upon, the void provisions,” then those provisions should be removed from the statute along with the unconstitutional provisions. In determining whether or not a provision of the statute is severable the legislative intent is the most important consideration. That is, the legislature must have intended the remaining valid provisions of the act be independent of the unconstitutional provisions.

The court held that the provisions of Act 13 that prohibited local governments from passing technical regulations of the gas industry through local ordinances were severable from the unconstitutional provisions. Accordingly, those provisions will remain in force. This means local governments in Pennsylvania cannot regulate technical requirements for oil and gas wells, like capping requirements, corrosion control requirements, casing requirements, and chemical disclosure requirements.

Conclusion
After the rulings, local governments in New York and Pennsylvania find themselves in the same boat when it comes to their authority to regulate hydraulic fracturing. Through land use regulation, local governments in both states are free to prohibit fracking wells within their borders. However, if wells are an allowable land use within local zoning plans, then New York and Pennsylvania state regulations preempt any attempts by local government to regulate the actual or technical operations of fracking wells.

Endnotes
1 2015 J.D. Candidate, University of Oregon School of Law.
3 Id.
6 Id. at 10-11.
7 Id. at 11.
8 Id. at 12-13.
9 Id. at 12.
10 Id. at 17.
11 Id.
12 Id.
13 Id. at 24-25.
14 Id. at 25.
15 Id. at 31.
16 58 PA. CONS STAT. § 3304(b)(5).
18 58 PA. CONS STAT. § 3302.
19 Robinson Twp. v. Commonwealth, 83 A.3d at 913.
21 Id. at 37.
22 See 58 PA. CONS STAT. §§ 3302, 3201-3274.
Disputes between landowners involving property boundaries are not uncommon. When the property is on a waterway, however, deciphering property lines can become even more complex. Part of this complexity is due to the fact that property lines on waterfront property often change due to the movement of the shoreline through the loss and gain of land. In addition, federal principles of law concerning the state ownership of submerged lands can also be involved. Two recent decisions in cases involving disputes to waterfront property, one from Oregon and one from Alaska, illustrate the difficulties courts face in resolving such issues.

**Sea River Properties, LLC v. Parks**

In Oregon, the supreme court recently considered a quiet title claim from two landowners: Sea River Properties, LLC (Sea River) and Loren Parks (Parks). At issue was a piece of property that had formed by accretion. Accretion is the formation of new land when sand, silt, or soil is gradually and imperceptibly deposited on the edge of existing land. In this instance, “the ocean and winds deposited sediment along part of the plaintiff’s lot” for a period of about seventy years following the construction of two jetties by the U.S. Army Corps of Engineers along the Nehalem River.

When the properties at issue were first platted by the state in the 1850s, both had the Pacific Ocean as their western border. Over time, the Nehalem River shifted and Parks’ property eroded to the point that it bordered a former channel of the Nehalem River rather than the ocean. After the jetties were constructed, sediment accreted across from Parks’ property and directly attached to Sea River’s property. In 2006, Sea River filed suit to quiet title, basing its claim on the fact that the accreted land attached to its property. Parks countersued, claiming title based on an 1883 deed from the state to one of his predecessors that granted title to the tidelands on which the new land formed.

**The Lower Courts’ Decisions**

According to the trial court, Oregon law dictates that “accreted land belongs to the owner of the upland to which the accreted land first attaches.” Applying this law to the facts of the case would dictate that Sea River Properties is the rightful owner, since the accreted land was attached to its property.
The situation, however, wasn’t so easy. According to the trial court, Parks was the rightful owner of the property under the doctrine of adverse possession. To succeed on an adverse possession claim in Oregon, a claimant must show by clear and convincing evidence that the use of the property was actual, open, notorious, exclusive, continuous, and hostile for a ten-year period. The trial court found that Parks met this standard “based primarily on [his] claim of ownership, his payment of taxes, the two easements he granted to the public bodies, and the permission he gave another public body to cut brush to maintain a sight line.”

The court of appeals ultimately reached the same conclusion as the trial court, although the appellate court based its decision on a different legal theory than the trial court. According to the appellate court, Parks did not have to adversely possess the property because he was the rightful owner. The court held that because the accretion began on existing tidelands, the land belonged to the owner of the tidelands, which in this case was Parks.

The appellate court also found that the doctrine of lateral accretion supported Parks’ ownership of the property. The doctrine of lateral accretion “applies when land accretes to one owner’s property and then extends laterally in front of another owner’s property, blocking that owner’s access to water.” In this instance, the court found that “because [Parks’] predecessors owned the tidelands on both sides of the southern river channel, their littoral access to ocean frontage persisted against any rival claim under the doctrine of lateral accretion.”

Oregon Supreme Court

Sea River appealed the ruling of the court of appeals. On appeal, the Oregon Supreme Court first considered whether Parks owned the new land under the doctrine of accretion. In this instance, the court disagreed with the lower court’s premise that the disputed property that formed over the tidelands was owned by Parks. In interpreting the 1883 deed that Parks claimed gave him title, the supreme court found that the deed did not convey the tidelands in question to Parks’ predecessors. Because the supreme court determined that Parks did not own the tidelands, it did not have to rule on the question of whether the owner of tidelands on which dry land forms owns that land.

The supreme court next examined the appellate court’s application of the doctrine of lateral accretion. As mentioned above, lateral accretion provides an equitable exception to the established law of accretion and awards title when a property owner who previously had access to water is cut off from that access by accreted land. While other states have recognized the doctrine of lateral accretion, Oregon has not.

Based on analysis of cases from Wisconsin and Washington, the court set forth specific elements that must be met for the doctrine of lateral accretion to apply. According to the court, “the doctrine of lateral accretion [only] applies when the accreted land that ordinarily would belong to one landowner cuts off an adjoining landowner’s access to a body of water.” This determination was fatal to Parks’ argument because his property had already lost access to the Pacific Ocean when the Nehalem River shifted. The loss of access, therefore, was not the result of the accretion process. Accordingly, the Oregon Supreme Court dismissed the lateral accretion argument.

The Oregon Supreme Court reversed both the trial and appellate court rulings. The court found that title to the accreted land passed to Sea River, since the new land was attached to its property. The court also reversed the adverse possession decision, finding that the defendant had failed to meet all of the elements necessary to establish adverse possession.

Lacano Invs., LLC v. Balash

In Lacano Invs., LLC v. Balash, the U.S. Court of Appeals for the Ninth Circuit ruled on a dispute between several landowners (collectively, Lacano) and the Alaska Department of Natural Resources (DNR) over ownership of certain streambeds. The suit stemmed from 2010 and 2011 determinations by the Alaska DNR that the “waterways above [the] streambeds were navigable in 1959, the year Alaska was admitted to the Union, and remain navigable.” The determination meant the streambeds would be the property of the state of Alaska. Lacano sought a declaratory judgment and an injunction to prohibit the state from taking possession of the streambeds.

Background

According to Lacano, the waterway, which the DNR deemed navigable, runs over streambeds they own. In support of this claim, Lacano pointed to “land patents that were issued by the federal government many years before Alaska entered the Union.” DNR claimed title to this land under the authority granted to them by § 1311(a) of the federal Submerged Lands Act of 1953. This section of the Act declares that submerged lands beneath navigable waterways within a state are the property of that state. In response, Lacano asserted that § 1311(a) of the Act does not govern this case because, “streambeds that had already been patented by the federal government were not granted to Alaska upon its statehood.”

State’s Motion to Dismiss

In response to the Lacano suit, Alaska filed a motion to have the case dismissed arguing that the federal court did
not have jurisdiction to hear the case. The state based its motion on the Eleventh Amendment, which “bars federal courts from hearing certain ‘suits’ filed by individual citizens against a state without the consent of the state.” The district court agreed and dismissed the case.

In some cases, plaintiffs can overcome the sovereign immunity defense. The “Ex parte Young” exception allows citizen suits when the only relief sought is an injunction to prevent the implementation of a state law that conflicts with a federal law. Lacano argued that this exception applied. The Ninth Circuit disagreed.

Limitations on Ex parte Young
The court cited the case of Idaho v. Coeur d’Alene Tribe of Idaho for the proposition that some forms of relief are not available under the Ex parte Young exception. In Coeur d’Alene, the U.S. Supreme Court ruled that the declaratory and injunctive relief the Tribe sought in this instance was “the functional equivalent of a quiet title action.” Citing the historical and legal importance of submerged lands to state sovereignty, the Court ruled that the Eleventh Amendment bars actions against a state that are the functional equivalent of a quiet title suit.

Such an action would “shift substantially all benefits of ownership and control of vast areas from the State to the Tribe, and thereby entail consequences going well beyond those typically present in a real property quiet title action. Furthermore, the requested relief would divest the State of its control over lands underlying navigable waters, which have historically been considered uniquely ‘sovereign lands,’ … title to which is conferred on the States by the Constitution itself.”

The court found that the injunction Lacano sought was also the “functional equivalent of a quiet title claim” against the state of Alaska and dismissed the case.

Going Forward
Both cases provide insight into the current state of property law as it pertains to issues involving riparian land. In the Oregon case, the court provides a detailed analysis of the doctrine of lateral accretion and how it should be applied. Although not yet recognized in Oregon, it will be interesting to see whether the state recognizes the lateral accretion doctrine in the future under a different set of facts. In the Lacano case, it is clear that courts will consider the sovereignty of states when hearing cases involving state-owned lands. There are significant public policy concerns that support this decision, including the importance of keeping such waterways open and safe for public use.

Endnotes
1 2015 J.D. candidate, Cumberland School of Law.
2 355 Or. 831 (2014).
3 Id.
4 Id. at 839.
6 Sea River Properties, 355 Or. at 858.
7 Id. at 840.
8 Id. at 850.
10 Sea River Properties, 355 Or. at 850.
11 Id. at 851.
12 Id. at 852.
13 Id.
14 Id. at 864.
16 Id. at *2.
17 Id. at *4.
18 Id. at *2.
20 Id.
22 Id. at *4.
23 Id. at *6-7.
24 Id. at *7.
26 Id.
27 Id. at 262.
In the four years since the Deepwater Horizon blowout, litigation has abounded. Along with civil suits, federal courts have also ruled on criminal charges. This article gives a summary of several legal events related to the incident that have occurred over the past couple of years. Most summaries were taken from full-length articles in the Mississippi-Alabama Sea Grant Legal Program’s newsletter, Water Log, which may be accessed at http://masglp.olemiss.edu/waterlog.

February 2012
On February 22, 2012, the U.S. District Court in the Eastern District of Louisiana ruled on preliminary liability issues under the Oil Pollution Act (OPA) and the Clean Water Act (CWA). The court ruled that since BP and Anadarko, owners of the well, are “responsible parties” under the OPA for the subsurface discharge of oil, the government is entitled to a declaratory judgment defining the rights of the parties on this issue. The court said that Transocean is not liable under the OPA for discharge that occurred beneath the surface, but it may be liable for removal costs. The court also ruled that BP and Anadarko are liable for civil penalties under § 311(b)(7) of the CWA, but could not resolve the issue of Transocean’s liability at this stage of the litigation.

March 2012
BP announced that it had reached a settlement agreement with thousands of individuals and businesses impacted by the Deepwater Horizon explosion. Plaintiffs were given the option to opt out of the settlement and proceed with litigation. The terms of the agreement did not place a specific cap on the monetary total that BP will ultimately pay; however, BP officials indicated that...
the company expected to pay approximately $7.8 billion to cover the plaintiffs’ claims, which included only lawsuits for economic loss and medical monitoring costs. This settlement was intended to cover damages suffered by those who both lost business and income and experienced property damage due to the spill. Plaintiffs eligible to take part in the settlement included seafood processors, restaurants, hotels, and business and private property owners along the coast, in addition to thousands of fishermen whose livelihoods were negatively impacted by the oil spill.

May 2012
A federal judge granted preliminary approval of the proposed settlement addressing economic loss claims and medical claims. The Economic and Property Damages Settlement applied to numerous categories of claims including: subsistence loss, seafood compensation, individual and business economic loss, wetlands property damage, coastal property damage, and vessels of opportunity damages. The settlement extended to impacted persons living or working in Alabama, Mississippi, Louisiana, and certain coastal counties of Texas and Florida. The settlement specifically excluded claims related to the moratoria.

The Medical Benefits Settlement included all oil spill clean-up workers and residents who resided in specified beachfront or wetland coastal areas for certain lengths of time. Claimants may be eligible for medical coverage (including reimbursement for medical treatment) for certain medical conditions as well as a 21-year medical monitoring program. In addition, the Settlement established a $105 million Gulf region Health Outreach Program for all Gulf Coast residents. The Program aims to strengthen healthcare capacity in the region and improve health literacy amongst Gulf residents.

January 2013
The federal district court approved a settlement between the U.S. Department of Justice and BP. As part of the settlement, BP agreed to plead guilty to 14 criminal charges and to pay $4 billion in penalties. Transocean settled civil and criminal charges with the government, agreeing to pay $1.4 billion in penalties.

February 2014
The Fifth Circuit considered whether state law claims brought in relation to the spill were preempted by federal laws governing oil spills. Eleven Louisiana coastal parishes (Parishes) filed their claim solely under the Louisiana Wildlife Protection Statute, a Louisiana state law, rather than bringing their lawsuit under applicable federal laws. The Louisiana law provides that the injured parties can “recover penalties ... for pollution-related loss of aquatic life and wildlife.” The district court ruled that the federal law preempted the state law claims. The Parishes appealed this decision, arguing that Louisiana state law should still apply. The Fifth Circuit determined that federal law preempted the state law claims as the source of the pollution was outside Louisiana. The court also reasoned that the effect of the CWA and OPA savings clauses was to preserve state claims, not to create new ones.

March 2014
The U.S. Court of Appeals for the Fifth Circuit upheld terms of the settlement agreement related to business loss claims (see March 2012 above). BP objected to certain terms in the agreement, arguing that those terms allowed businesses to collect payments without proving causation. The Fifth Circuit affirmed the district court’s decision upholding the settlement, finding that since the terms were agreed upon by the parties and approved by the district court, BP must adhere to them.

June 2014
The Fifth Circuit ruled on whether the Macondo Well’s owners or the Deepwater Horizon’s owners were liable for the CWA violations stemming from the blowout. BP and Anadarko claimed that the “discharge” did not occur from the well, but from the riser, because it was from a break in the riser that the oil entered navigable waters. Therefore, they claimed, the civil penalties should be enforced against the riser’s owner, Transocean.

The Fifth Circuit disagreed with BP and Anadarko. It held the cement failure at the well constituted the “discharge” under the CWA, because it allowed oil to flow from an area of controlled confinement into navigable waters. Because the Macondo Well was the discharging facility, the Fifth Circuit held the owners of the well, BP and Anadarko, were liable for the penalties.

September 2014
A U.S. district court judge ruled on the cause of the 2010 oil spill and apportioned blame for the incident. The judge found that BP’s actions resulted in gross negligence, which could quadruple penalties faced by the company. The CWA § 311 imposes mandatory penalties of $25,000 per day or up to $1,000 per barrel against the owners of facilities that “discharge” oil or hazardous pollutants into navigable waters. Penalties may reach up to $4,300 per barrel in instances of gross negligence.
The judge also apportioned blame among three companies: BP, 67%; drilling rig owner Transocean Ltd., 30%; and cement contractor Halliburton Energy Service, 3%. The court found that BP bears the majority of responsibility for the 2010 oil spill due to decisions “primarily driven by a desire to save time and money, rather than ensuring that the well was secure.”

In a separate future ruling, the judge will determine how much oil spilled as a result of the incident. And in the third phase of the case, expected to begin in January, the judge will rule on exactly how much the companies will owe in CWA penalties.

Later in September, the U.S. Court of Appeals for the Fifth Circuit ruled that the Chemical Safety Board (CSB), an independent federal agency established by the Clean Air Act (CAA), had jurisdiction to investigate emissions from the Deepwater Horizon disaster. The CSB had issued subpoenas to Transocean in connection with its investigation. After Transocean failed to comply with the subpoenas, the U.S. government filed an action to enforce them. Transocean argued that the CSB lacked jurisdiction to conduct the investigation because the incident was a marine oil spill and did not occur on a stationary source. The court ruled that the installation was a “stationary source” within the meaning of the CAA.

Endnotes
1 In re Oil Spill by the Oil Rig “Deepwater Horizon” in the Gulf of Mexico, MDL No. 2179, WL 569388, 1, (E.D. La. Feb. 22, 2012). For full article, see Niki Pace and Christopher Motta-Wurst, BP Oil Spill Litigation Roundup, 32:2 WATER LOG (2012).
2 For full article, see April Hendricks Kilcreas, BP Settles Portion of Claims, 32:1 WATER LOG (2012).
3 Tom Fowler, BP, Plaintiffs Reach Settlement in Gulf Oil Spill Case, WALL STREET JOURNAL (March 4, 2012).
4 Notice of Filing of Economic and Property Damages Settlement Agreement, In re: Oil Spill by the Oil Rig “Deepwater Horizon” in the Gulf of Mexico, MDL No. 2179 (E.D. La. May 3, 2012). For full article, see Pace, supra note 1.
5 For full article, see Cullen Manning, Courts Continue to Deal with Deepwater Horizon Aftermath, 33:1 WATER LOG (2014).
6 Clifford Kraus, Judge Accepts BP’s $4 Billion Criminal Settlement Over Gulf Oil Spill, N.Y. TIMES (Jan. 29, 2013).
7 For full article, see Cullen Manning, Deepwater Horizon Update: A Snapshot of Recent Rulings, 34:2 WATER LOG (2014).
9 In re Deepwater Horizon, No. 13-30315, 744 F.3d. 370 (5th Cir. 2014).
11 In re Oil Spill by Oil Rig Deepwater Horizon in Gulf of Mexico, 2014 WL 4375933 (E.D. La. Sept. 4, 2014).
12 Id.
World population growth and economic development trends are principal drivers of a steadily increasing demand for high quality, nutritional seafood products. With wild capture fisheries at their maximum sustainable harvest capacity of 100 million metric tons, aquaculture, the husbandry or controlled cultivation of aquatic plants and animals, has been bridging the expanding gap between rising demand and static traditional seafood sources. Bivalve shellfish such as oysters, clams and mussels represent 20% of domestic production value. This percentage continues to grow along with increasing recognition of the nutritional, environmental, and economic benefits associated with shellfish aquaculture.

In Delaware, however, aquaculture has not been an option since the late 1970s when all private commercial leases were converted to public ownership and provisions of state law effectively prohibited shellfish aquaculture. Despite this, over the past 15 years, Delaware researchers engaged in applied shellfish research, demonstration, and field work to evaluate the value and effectiveness of using aquaculture technologies as part of a shellfish management strategy for the Delaware Inland Bays. In part due to that research, the Delaware state legislature and the Department of Natural Resources and Environmental Control (DNREC) have enacted laws and regulations that will renew shellfish aquaculture in the state.

Background
Historical accounts of oysters and clams as a food staple and a product of commerce in Delaware date back to pre-colonial times. The commercial oyster fishery in Delaware Bay originated in the early 1800s and reached its production peak following World War II from 1947 until 1957, when a devastating disease caused by the protozoan parasite MSX or Multi-Nucleated Sphere Unknown (Haplosporidium nelsoni) destroyed 95% of the oyster resource. During the post-war period in the Delaware Inland Bays more than 4,000 acres of bottom in Rehoboth Bay and Indian River Bay were also being leased for oyster production. Utilization of bottom lease acreage declined during the 1950s and 1960s due to disease-related losses, and reduced availability of seed oysters. By 1978 there was no remaining oyster production or available seed oyster supply. Based on this and the ongoing conflict with the public hard clam fishery, the Delaware General Assembly returned all remaining bottom leases back to state/public ownership.

In 1994 the Delaware General Assembly established the Delaware Center for the Inland Bays (CIB), a non-profit participant in the National Estuary Program (NEP), to develop a management plan for stewardship of the estuary and its indigenous flora and fauna. Maintaining healthy populations of bivalve shellfish for their ecological, recreational and commercial value to Delaware’s Inland Bays is one of the Center’s top priorities. Research and demonstration activities have included:

- characterization of seasonal hard clam and oyster growth and survival (1998-2001);
- establishment and monitoring of a pilot-scale ¼-acre oyster reef at the James Farm on Indian River Bay (2001-2006);
- bivalve shellfish stock assessment in Little Assawoman Bay (2002-2003);
- development of a citizen volunteer oyster gardening program (2003-2013);
- oyster habitat related research in association with Delaware State University (2005-2013); and
- a field survey of hard clam population density and distribution in Rehoboth Bay and Indian River Bay (2010-2011).

The cumulative results of more than a decade of Inland Bays applied shellfish research, demonstration, and field work and examples of related activities in neighboring states increased public interest in the importance of Inland Bay shellfish resources for both...
restoration and potential commercial production. In March 2012 the Center for the Inland Bays convened a shellfish aquaculture stakeholder work group, or “Tiger Team,” to evaluate scientific and educational accomplishments, and policy changes needed to reinstate commercial shellfish aquaculture in Delaware’s Inland Bays. The group included representation from the Center for the Inland Bays, the Delaware Sea Grant Marine Advisory Service, DNREC, Delaware Department of Agriculture, Delaware Shellfish Advisory Council, commercial shellfish industry, recreational fishing, Sussex County Economic Development Office, and prospective shellfish farmers.

A Policy, Permitting, and Funding Subcommittee reviewed current rules and regulations in the Delaware Code, and proposed draft revisions and legislation to permit commercial aquaculture on the Inland Bays for consideration by the Delaware General Assembly. The Spatial Planning Subcommittee used Geographic Information System (GIS) technology and consultation with stakeholder groups to identify and map existing uses and activities on the bays to determine the areas that shellfish aquaculture could occur in balance with other bay users. The Education and Outreach Committee worked to inform the public about the economic opportunities for coastal communities, and ecological benefits related to commercial shellfish aquaculture. By March 2013 the Tiger Team released a Final Report of the Shellfish Aquaculture Tiger Team to the Board of Directors of the Delaware Center for the Inland Bays, with recommended policy revisions for a legislative initiative.

In June 2013, a bill was introduced to the legislature that would authorize DNREC “to direct and control the shellfish aquaculture activities within the Inland Bays and to set criteria for the approval of lease sites and applications for leasing.” The legislation was passed by unanimous vote in both the House and the Senate. The DNREC Division of Fish and Wildlife has since developed a shellfish aquaculture leasing program and regulatory framework for the Inland Bays.

DNREC Regulations
The DNREC regulations for shellfish aquaculture, written with significant input from the Tiger Team, went into effect this past August. In the course of the regulatory development process, DNREC also met with the U.S. Army Corp of Engineers (Corps) in order to streamline the permitting process and to identify other leasing requirements. The new regulations outline the process for leasing of subaqueous bottom within Delaware’s Inland Bays for shellfish aquaculture. The regulations note areas available for aquaculture leases. The regulations also identify: acceptable shellfish aquaculture gear and marking, shellfish nursery permitting and structures, harvester license qualifications, bivalve species authorized for aquaculture, acceptable activities within subaqueous lease areas, and shellfish aquaculture reporting requirements. In publishing the regulations, DNREC noted that

The purpose of these proposed new regulations is to implement the intent of House Bill 160 by creating an aquaculture industry in Delaware that provides jobs and economic benefits to the citizens of this state, while potentially reducing nutrients in the Inland Bays. At the same time, these proposed new regulations also serve to ensure the compatibility with Delaware’s boating and fishing uses of the Inland Bays, while enabling the Department to protect and to sustain Delaware’s native species, including its robust hard clam population.

Based on a system-wide survey of wild hard clam resources and spatial planning to identify navigational channels, major commercial clam harvest, and recreational fishing and boating areas, DNREC identified 442 acres to be considered for possible shellfish aquaculture bottom leasing. In accordance with the HB 160 legislation, the proposed acreage is less than 5% of approved shellfish harvest waters in Rehoboth and Indian River Bay and less than 10% of approved waters in Little Assawoman Bay.

As the next step in the regulatory development process, DNREC has submitted an application to the U.S. Army Corps of Engineers (Corps) Philadelphia District office for permit approval under Nationwide Permit 48 (NWP 48) of the Rivers and Harbors Act to authorize commercial shellfish aquaculture activities in proposed bottom lease areas or Shellfish Aquaculture Development Areas (SADAs). The permit includes provisions to protect navigation, spawning areas and migratory patterns of aquatic species, migratory bird breeding areas, and concentrated (natural) shellfish populations. The Corps will have a public comment period, which at this time has not been released. Best estimates are that acceptance of lease applications could commence sometime prior to spring 2015.

NIMBY
Recently, coastal residents and homeowner’s associations from two locations in the vicinity of proposed SADAs have come forward to raise strong objections to the locations of bottom lease areas and marking requirements in the waters adjacent to their communities. Despite a series of public meetings, media reports, DNREC informational meetings, and a
public hearing and comment period, all over a two-year period, several (mostly seasonal) residents objected to not being included in the stakeholder consensus process. Their main concerns with allowing aquaculture in the SADAs include: anticipated reduced property values from loss of recreational use, obstructed water views, and other impacts from commercial shellfish activity. State representatives and DNREC officials recently conducted a public informational meeting with coastal homeowners to discuss these grievances, but no resolution of their complaints thus far has been reached.

Conflicting use issues are a common and widespread occurrence when considering aquaculture siting in coastal locations. This is especially the case in a small state like Delaware where there is extensive commercial and seasonal recreational use of local waters. Introducing aquaculture as a new activity while also minimizing potential conflicts with existing uses is clearly not an easy process as evidenced in other coastal states where shellfish aquaculture has become well established and accepted. As one of the last states in the nation to allow commercial shellfish aquaculture, Delaware can benefit from numerous examples of conflict resolution and state management policies that are currently in practice.

Rhode Island, as the smallest state in the nation, with coastal resources and conflicting use issues similar to Delaware, provides perhaps the best example of coastal aquaculture development to learn from or emulate. Since 1995, Rhode Island has managed incremental and controlled, steady growth in shellfish (predominantly oyster) aquaculture leases from one farm on 2 acres to 52 farms on 176.6 acres in 2013. This relatively small industry currently supports 127 full-time and seasonal employment and has a dockside value of $4.3 million dollars (food and seed sales).

An industry of similar size and scope is certainly achievable in the Delaware Inland Bays if bottom leases can be optimally located in relatively small portions of the three bays. There is widespread agreement, even among dissenting coastal residents, that increased ecological services and economic development from commercial shellfish aquaculture would be beneficial for Delaware’s Inland Bays and coastal communities. Future challenges include reaching a broader consensus on lease siting and marking requirements, and public education by Sea Grant and partners to inform concerned coastal residents about examples of successful shellfish industries in other coastal states.

Endnotes
1 Ewart serves as Aquaculture and Fisheries Specialist, Delaware Aquaculture Resource Center, Sea Grant Marine Advisory Service, College of Earth, Ocean and Environment at the University of Delaware. This article was excerpted in part from John W. Ewart, Shellfish Aquaculture in Delaware’s Inland Bays: Status, Opportunities, and Constraints (July 2013), http://darc.cms.udel.edu/ibsa/Inland%20Bays%20Shellfish%20Aquaculture%20White%20Paper%202013.pdf. For additional information and updates, please visit http://darc.cma.udel.edu.
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