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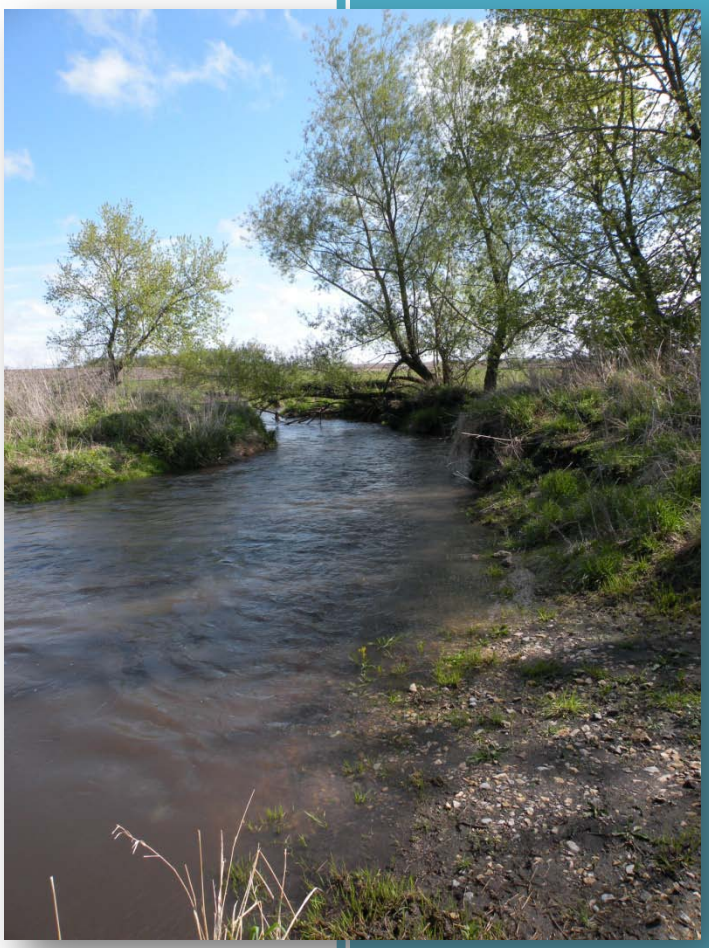
Water Planning Law and Government



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I. The need to figure out who can or should do what.

Water planning efforts typically identify problems and needs. But simply calling attention to issues is usually not enough to spur action; the end result of many well-intentioned planning efforts is a report that ends up gathering dust on a shelf. Vague recommendations like "Water conservation measures should be implemented" usually accomplish little by themselves as they don't assign responsibility to anyone. Success is more likely when an implementation strategy — who can and should do what — is developed as part of the planning process. The more detailed and specific the implementation strategy, the greater the chance that something will actually be done. The question then becomes who has the legal authority or responsibility to do what? Are new laws and programs needed or can existing ones be used to implement the recommendations?

Water planning might, for instance, show that water use is far exceeding the sustainable yield of the aquifer that provides a region's water and that development of new, alternative sources such as a water supply reservoir is unlikely. More simply stated, they will run out of water if something does not change. Recommendations to address this looming problem would logically include water conservation measures but unless a specific strategy — who should do what — to implement those conservation measures is identified, the recommendations will not likely lead to the changes needed to avert future water shortages.

Implementation strategies can range from voluntary approaches that legally don't require anyone to do anything to draconian regulations that impose strict, mandatory requirements and provide harsh penalties for noncompliance. For the above situation, the implementation strategy might include a range of actions. A media campaign could be conducted to convince people to voluntarily "do the right thing" by installing water-efficient appliances and plumbing fixtures and reducing lawn watering. Incentives to encourage voluntary water conservation might include rebates for water-saving appliances and technical assistance to industries to identify water-saving processes. Water rates could be structured to discourage waste, treated wastewater could be used to irrigate golf courses, and development policies could favor low water consumption type industries and businesses. And, a law might be passed that mandates compliance with certain water conservation provisions by a certain date, insuring compliance for those that haven't voluntarily done so by that date. This implementation strategy would involve a number of different entities with differing legal authorities and the strategy would have to identify who can and should do what.

Water issues are complex and strategies to bring about changes in water policy will often include an array of agencies and programs that sometimes have fundamentally different authorities and objectives. This document provides a look at the roles, responsibilities, and authorities of the federal, state and local governments to carry out water policy. More specifically, the questions are who, if anyone, is *required* to do water planning and who has the legal *authority* to implement any resulting recommendations?

Much has changed since the Iowa Water Plan '78 Framework Study was completed.[1] The federal Clean Water Act, Safe Drinking Water Act, and Endangered Species Act, all of which have regulatory provisions that affect state water policy, were in their infancy at the time and a number of amendments have been made and pivotal court decisions have been handed down by the U.S. Supreme Court since then. At the state level, legislation such as the Iowa Groundwater Protection Act has been passed and independent resource agencies combined. The federal government has taken on a much stronger oversight and regulatory role over water quality issues while at the same time federal assistance for state water planning and water programs is declining, often leaving states with an increasing level of responsibilities and expectations and decreasing levels of financial support.

This document is divided into four main parts. The first, "Carrots and Sticks" looks at two basic approaches — regulatory and non-regulatory — that can be, and are, used to carry out water policy. Both

[1] The 1978 Framework Study, prepared by the Iowa Natural Resources Council with the assistance of many other agencies, addressed water problems in nine functional areas and provided recommendations to solve those problems. The study report was the culmination of a three-year planning effort supported in large part by federal grants authorized by the 1965 Water Resources Planning Act.

have advantages and disadvantages that need to be considered. The second, "The powers of federal, state and local governments…," looks at the constitutional powers the federal government and state and local governments have to carry out water policy. An initial look at the U. S. Constitution might suggest the federal government's regulatory authority over water is limited but, in fact, its powers are very substantial. States have considerable authority to do a number of things but have to be mindful of any federal efforts that might conflict with those state efforts. And local governments can only do those things the state constitution or state legislature says they can do and must conform to any requirements or limitations on those powers that are contained in the enabling acts. Parts three and four examine in more detail the main programs and agencies at the federal level as well as Iowa's state and local levels and the roles they play in national and state water policy.

This document only provides a broad overview of the various authorities and programs that relate to water policy in some way. As such, it was necessary to omit many details and nuances that often prove to be significant concerns and hurdles. Additionally, the emphasis is on constitutional provisions and statutory and common law versus administrative rules. The intent was to set the stage for further, more detailed work and any discussion of specific program areas such as water rights or water quality should be preceded by a much more detailed and specific review and analysis of all relevant statutes and rules.

II. Carrots and sticks: two different ways of carrying out water policy

The tools that can be used to implement water policy broadly fall into two categories: 1) voluntary programs and 2) regulatory programs. Many implementation strategies use a mix of both. The federal Clean Water Act, for instance, establishes a regulatory approach for point sources of pollutants but uses a voluntary approach for nonpoint sources. Both approaches have advantages and disadvantages and strategies to carry out water policy need to look at both and determine how they can work together rather than only considering one or the other.

The voluntary approach

Voluntary efforts to achieve water policy objectives are typically preferred over regulatory approaches as they don't legally *require* anyone to do anything and, therefore, are less politically sensitive, less subject to legal challenges and more likely to receive broader public support. People will often respond by "doing the right thing" when presented with hard facts and good guidance. If the citizens of a city are convinced there is or will soon be an actual water shortage, for instance, many will respond voluntarily by conserving water through various means such as restricting lawn watering and installing low volume toilets and showerheads. Farmers are more likely to incorporate tillage practices that reduce soil erosion and improve water quality if they are given the right information. Factual information and clear guidance are essential if voluntary efforts are to succeed.

Voluntary approaches are often enhanced by offering financial incentives — carrots — to encourage people to do the right thing. Offering homeowners a rebate to offset the purchase of water-saving plumbing fixtures is one straightforward example of such incentives. If the carrot is big enough, this approach can accomplish significant and far-reaching objectives, but someone has to have the money to pay for the carrot.

Many federal programs use the carrot approach to implement water policy in that federal grants or financial aid to states, local governments, organizations or individuals are conditioned upon the recipient doing, or not doing, certain things. Section 106 of the federal Clean Water Act, as an example, provides the authority for the EPA to make grants to states for water quality activities, but conditions those grant funds on states carrying out a water quality monitoring program and preparing biennial reports on water quality. The Clean Water Act does not legally require states to do the monitoring and reporting; they are only required if a state applies for and receives Section 106 funds.

Similarly, the various forms of assistance and price supports provided by the various federal farm acts are conditioned upon the recipients doing or not doing certain things like preparing nutrient management plans or not draining wetlands. Once a producer "signs up", the various requirements are enforceable but since program participation is voluntary the various conditions and restrictions of the federal farm acts are considered voluntary; only enforceable if a producer elects to participate in the program. But because the financial incentives to participate in the farm program are very significant, this voluntary approach is a very powerful one that can be used to achieve changes in land management practices that can lead to improved water quality.

Another example of a voluntary program with far-reaching impacts is the National Flood Insurance Program (NFIP). Flood insurance for most homeowners is largely unavailable through the private market. A local government can make federal flood insurance available to its citizens if it joins the NFIP, but it must also agree to regulate floodplain development as a condition of participation. Nothing forces a local government to join the NFIP and regulate floodplain development, but the carrot — the availability of flood insurance as well as federal disaster assistance for flood damage — is big enough to convince most flood prone communities to join the NFIP and to regulate floodplain development using their own local land use powers such as zoning. The NFIP neither provides the federal government with the authority to regulate floodplain development nor requires local governments to do so but it has resulted in a significant number

of flood prone communities adopting floodplain development regulations that are intended to minimize future flood losses.

In addition to being politically more palatable compared to regulatory approaches, an advantage of voluntary approaches is that they often can be implemented quickly and are well within the general authority of most governmental agencies. A state department of public health, for instance, might strongly suggest that everyone get a flu shot to protect against a particularly virulent flu strain, something that would be will within their general authority to do. Not everyone would voluntarily do so but most of the population might, especially if the facts supported the virulent nature of the flu strain. A regulatory approach that specifically required every man, woman and child in the state to get a flu shot, however well intentioned, would likely fail as it would take time enact the regulation, would likely meet resistance or be legally challenged, and would be hard to enforce.

The regulatory approach

The regulatory approach — the stick approach — has, on the other hand, a distinct advantage over the voluntary approach in that it legally either *requires* things to be done or *prohibits* certain actions and does not depend on the goodness of people to do the right thing or the availability of funds to provide enticing carrots. However, the regulatory approach has its own set of limitations that make it much more difficult to carry out.

There are numerous statutes, rules and ordinances passed by various federal, state and local governing bodies like legislatures, administrative agencies, and city councils that establish mandatory requirements. A local building code, for instance, might require the plumbing in new buildings to meet specific requirements to insure drinking water will not be contaminated by cross connections or the use of inappropriate materials like lead solder. A state agency's rules might prohibit development in the floodway of a river. And, a federal statute might prohibit the destruction of habitat for an endangered species. All of these would require that people or organizations do certain things or, conversely, not do some things. These requirements, all considered laws in a general sense, are not optional and failure to comply with these requirements would bring out the sticks of enforcement — fines, court orders or even jail time. There is no requirement the governmental entities pass these regulatory requirements pay the cost of compliance; their primary costs are for enforcement, making sure everyone obeys these laws.

Laws that establish mandatory requirements are subject to a variety of legal challenges so care must be taken in enacting them, lest a court determine they are unconstitutional and, therefore, unenforceable. To begin with, the governmental body passing a law must be legally authorized to enact such a law. The Environmental Protection Agency, for instance, would not have the power to adopt rules implementing the regulatory provisions of the Clean Water Act unless Congress authorized the EPA to do so. For that matter, the EPA wouldn't exist if Congress hadn't created it. And Congress has to look to the U.S. Constitution for the authority to enact the Clean Water Act. Similarly, a city council would have to point to a grant of authority from their state constitution or legislature to be able to pass a floodplain management ordinance that regulates floodplain development. Grants of authority, whether they come straight from a constitution or from legislation adopted pursuant to constitutional authority, typically contain procedural requirements such as public involvement to insure that authority is not abused.

Even if a governmental body has the legal authority to enact a law and follows the proper procedures for doing so, the law is still vulnerable to legal challenges if it doesn't meet some fundamental legal tests. Laws that regulate activities in some way generally must meet the following Constitutional provisions:

- There must be a legitimate public purpose. The U.S. Constitution's Fifth Amendment provides that "*no person shall be …deprived of life liberty, or property without the due process of law* …" The Fourteenth Amendment also reiterates this language as a limitation on states' powers. In addition to requiring lawmaking to meet certain procedural requirements, this also requires that a regulation be justified by its intended purpose, that it be fair and reasonable and that it not be

unduly restrictive. A regulation that restricts water usage, for instance, might be ruled unconstitutional if the enacting body did not justify the public need to do so. There is no "bright line" the courts use in deciding whether a regulation violates the due process clause. Instead, the courts look at whether the severity of the regulation is justified by the public good that will be achieved.

- Regulations must apply equally to everyone. The Fourteenth Amendment to the U.S. Constitution requires that a state "…*not deny to any person…the equal protection of its law*s." As applied to regulations, this "equal protection" clause means that absent compelling reasons otherwise, the regulations must apply equally to everyone. A city floodplain ordinance that restricts development in the floodplain of a river would, of course, only apply to owners of floodplain lands. But this would not violate the equal protection clause if the regulations applied equally to all lands and landowners within the floodplain. A zoning ordinance typically has different requirements for different zones — residential, business, industrial, etc. — but the courts generally have said zoning ordinances are constitutional as long as the boundaries of those zones are justified by a comprehensive plan rather than being completely arbitrary and capricious.

- Regulations cannot be so severe so as to "take" property without compensation. The Fifth Amendment to the Constitution prohibits the taking of private property "…*for public use without just compensation*." Most state constitutions, including Iowa's, have similar language. Many governmental agencies have eminent domain powers — the power to take private lands for public purposes such as the building of a road or the construction of flood control levee. In these cases, the government is required to pay the landowner a fair price if they take possession of their land for a public purpose. The courts have also said that where a regulation intended to achieve a public purpose goes so far as to deprive a landowner of all reasonable use of that property, there may be a "regulatory taking" that also requires just compensation, even though the regulatory body does not actually take possession of the land. In evaluating whether a regulation affects a regulatory taking, the courts generally look at all relevant factors including the purpose of the regulation and the severity of the impact.

When the courts are asked to determine if a regulation violates constitutional principles, there generally is a presumption of constitutionality and the plaintiff has the burden to prove otherwise. In other words, the bar for proving a law to be unconstitutional is usually a high one. As a result, legislating bodies generally have considerable latitude in deciding what an appropriate public purpose is and the severity of the regulations needed to achieve that public purpose. A regulatory body should nonetheless be guided by these constitutional principles when it develops regulations as they are fundamental to constitutional law and the principle of fair play.

Most regulatory law is written law, contained in federal or state statute, administrative rules or ordinances that have been passed by a governing body with the authority to pass such laws. Another kind of law that carries a potentially "big stick" is common law. Common law is the collective decisions or opinions of federal or state courts on a particular subject. Federal and state courts will look for any prior decisions by appellate or supreme courts that are relevant to the case before them and generally will respect the precedent set in previous cases, a principle known as *stare decisis* — to stand by things already decided. In the days before the federal and state governments passed laws specifically dealing with various water issues, common law often provided the exclusive remedy to address issues like water rights, drainage and pollution. For instance, a number of state and federal courts ruled that any person who pollutes a natural watercourse to the injury of a riparian owner is liable for damages. Unlike statutory law which typically assigns primary enforcement to a particular agency or official, common law is enforced by the damaged party bringing suit against the offender. In this day and age, common law is less important as a remedy but many of the existing federal and state laws that deal with pollution, water rights, and other water issues reflect federal and state common law established before the legislation was passed.

III. The powers of federal, state and local governments to carry out water policy.

The previous section looked at two basic approaches — voluntary and regulatory — that can be used to carry out water policies such as controlling water use, preventing pollution, and reducing flood damages. Voluntary approaches are often preferred as they don't legally require anyone to do anything. Not only are voluntary approaches more politically palatable, they are not subject to regulatory "takings" challenges and much less apt to raise due process and equal protection issues. The National Flood Insurance Program, the federal farm acts, and portions of the Clean Water Act have been effective in achieving water policy through voluntary means; largely aided by financial carrots big enough to make participation in these voluntary programs attractive.

On the other hand, regulatory approaches have the distinct advantage that they do legally require people to do certain things or prohibit them from doing others. Failure to comply with regulatory requirements invites the "big sticks" of enforcement. Laws that mandate compliance infringe to some degree on people's freedom to do as they please and there must be a clear public purpose to justify that infringement, making the development of regulations a balancing act between personal freedom and public interests.

No matter the approach, voluntary or regulatory, that is used to carry out water policy, the implementing entity must be able to point to a grant of authority to do what they do or are proposing to do. This section takes a look at the powers the federal government, the Iowa government, and local governments in Iowa have to carry out water policy.

The federal government

The Tenth Amendment to the U.S. Constitution provides that:

> *"The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."*

In other words, the federal government has only those powers that the individual states, acting collectively in approving the Constitution and its amendments, specifically granted to it. All other powers belong to the states or their citizens unless the Constitution specifically prohibits or places restrictions on those state-assumed powers. Nowhere does the Constitution specifically say the federal government can regulate the discharge of pollutants, build massive multi-purpose reservoirs, or prevent the destruction of wetlands. Yet, the federal government does all of these things. To justify these programs as a legitimate exercise of its powers, the federal government must be able to point to a Constitutionally-enumerated power that provides the authority to do what it does; it cannot automatically assume it has the power to do anything it wants and that its powers are expansive and unlimited.

The federal government's constitutional authority to carry out water policy is primarily contained within two broad powers granted to Congress, namely:

1. The power to regulate commerce among states; and
2. The power to provide for the general welfare of the United States - the so-called spending power.

The Constitution also gives Congress the power to make all "necessary and proper" laws to carry out its enumerated powers. Additionally, the Supreme Court's power to resolve interstate conflicts and the requirement that Congress approve interstate compacts have the potential to establish federal water policy for the involved states.

Although not a power per se, the Constitution also provides that:

> *"… the Laws of the United States which shall be made in Pursuance thereof, … shall be the supreme Law of the land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding."*

This provision, known as the supremacy clause, means that where Congress has the constitutional authority to pass a law on a particular subject and the federal law conflicts with a state law, the federal law will prevail. Also, the U.S. Supreme Court's decisions are the "law of the land" and state courts as well as all citizens are bound by the Supreme Court's decisions. An Iowa case is often cited as an example of federal supremacy when federal and state laws conflict in a given area. In that case, an Iowa company proposed to divert Cedar River flows for hydropower generation. A federal license was needed for the project and the licensing authority, the Federal Power Commission, favored the project. However, the project would have violated Iowa law that prohibited the planned diversion. The U.S. Supreme Court in 1946 ruled the federal license would preempt state law and the project could be built without state approval and contrary to state law.[2] The project was never constructed but the project could have been constructed due to the prevailing federal interest and the supremacy clause of the Constitution.

The supremacy clause is particularly important for legislation like the Clean Water Act, a federal law that regulates certain things like the discharge of pollutants. To the extent the Act's provisions and EPA administrative rules implementing those provisions conflict with individual state statutes and programs that also regulate such activities, the Act and implementing rules will be the "supreme" law and preempt state laws and regulations. Additionally, federally-owned lands are not subject to state or local laws unless Congress has specifically said so.

How each of the constitutional powers enumerated above influence or carry out water policy is explained below.

The commerce power

Congress has the power to regulate commerce between states — interstate commerce — and at first look this appears to be a somewhat limited power insofar as its usefulness to regulate various aspects of water. However, the commerce power has proved to be a very powerful authority in regulating a variety of things including the discharge of pollutants into waters of the United States.

One of the earliest water-related applications of Congress' commerce power involved the regulation of navigable waterways. Much of the commerce between states in the early days of this country was carried out by boats traversing coastal and inland waters. Any actions that would interfere with interstate navigation or make interstate waterways less navigable could be viewed as interfering with interstate commerce and, thus, the federal government asserted the power to regulate navigation and navigable waterways as a legitimate exercise of its Constitutionally-delegated power to regulate interstate commerce. Through various court decisions over the years, waters subject to the federal government's navigation powers were determined to include:

1. Waters historically and presently used for commercial navigation in interstate commerce;

2. Waters capable of being used for commercial navigation in interstate commerce if reasonable navigational improvements were made; and

3. Tributaries to such navigable waters if an action on the tributary would affect the navigable capacity of the navigable water.

[2] *First Iowa Hydro-Electric Cooperative v. Federal Power Commission*, 328 U.S. 152 (1946)

The Rivers and Harbors Appropriation Act of 1899 specifically prohibited certain actions that would interfere with the navigability of waterways used for interstate commerce. Section 10 established a permit system to insure any construction within a navigable waterway would not interfere with its navigability. Section 13, sometimes known as the Refuse Act, prohibited among other things the discharge of refuse matter of any description, other than "liquid matter flowing from sewers and streets", into a tributary of a navigable water where it might be washed into a navigable water. These regulatory provisions of the Act drew on the authority of Congress to regulate interstate commerce.

Congress' commerce power is also cited as the Constitutional authority for the regulatory provisions of the federal Clean Water Act and Safe Drinking Water Act, two of the most important contemporary laws affecting water pollution and public drinking water safety. Section 301 of the Clean Water Act prohibits the discharge of pollutants from point sources unless specifically authorized by a permit issued under the provisions of Section 402 or 404 of the Act. The rationale used to justify these regulatory provisions as a legitimate exercise of the commerce power is that activities such as the discharge of sewage into a water body can interfere with interstate commerce in ways that transcend the more traditional navigation power. For example, the pollutants in untreated sewage discharged into a stream in one state will eventually find their way into streams and rivers of another state, the water of which might be used in the manufacture of goods that are sold in interstate commerce. If those pollutants render the water unfit for the manufacturer's use, the discharge of the pollutants could be considered an activity that interferes with interstate commerce.

The Constitutionally-enumerated commerce power is arguably Congress' single most potent power to regulate a variety of activities. Congress has historically pointed to the commerce power as authority for a wide variety of laws regulating activities that sometimes only have a very indirect and tenuous link to interstate commerce, including telling a farmer how much wheat he could grow (even though the wheat was not being sold in interstate commerce) and banning the growing of marijuana for private use. Beginning in the 1930's the Supreme Court generally supported an expansive interpretation of the commerce power although there are some signs the present Supreme Court may want to shorten the "long arm" of that power. Nonetheless, the commerce clause is a very powerful, Constitutionally-enumerated authority that potentially could be used to expand the federal government's authority over water resources even beyond its present reach. As federal laws are considered "superior" to state laws, the potential exists for the federal government to essentially "take over" all aspects of water use and regulation within a state. However, Congress traditionally has been hesitant to usurp states' powers to regulate water use and pollution within their own borders and usually does so only when states' failure to do so has created a problem of a national scope.

The spending power

Congress' authority to "provide for the General Welfare" basically means it can spend money on things that have a public purpose, things that benefit society at large. The construction of federal water projects such as multi-purpose reservoirs is one example of how the spending power can affect water policy, as these projects have the potential to affect water flow and availability in a number of states. The six main stem reservoirs on the Missouri River in Montana, North Dakota South Dakota and Nebraska, as an example, are large federally-built and operated reservoirs that store and release water for a variety of project purposes including irrigation, domestic and industrial use, flood control, power generation and navigation. How these reservoirs are operated — how much water is released and when — to meet these project purposes can affect a number of states. Congress authorized the construction of these reservoirs as well as the operating plans and to the extent the operation of these reservoirs conflict with individual states' water programs such as water rights or water allocation, the federal interest as expressed in the operating plans will prevail. States only avenue of redress is to seek a change in the operating plan to address their concerns.

A less direct but perhaps more important use of the spending power to achieve water policy is through conditions placed on federal grants or other forms of federal assistance. Sections 106 and 319 of the federal Clean Water Act authorize grants to states for carrying out water pollution control

activities related to the goals and objectives of the Act. These grant funds are conditioned on states doing such things as conducting water monitoring and preparing a nonpoint source pollution management plan. Such grant funds are authorized by Congress' spending power and while Sections 106 and 319 are non-regulatory in that they don't require anyone to do anything, the availability of these financial carrots are attractive enough to make most states apply for the grant funds and commit themselves to abiding by the grant conditions. In some cases, the conditions attached to grants made for one purpose are intended to achieve objectives not directly related to the program grant, conditions known as "cross-cutters". An example would be highway construction funds that are conditioned upon a state enacting helmet laws for motorcycle riders. Given the plethora of grants available to states in a variety of program areas, the spending power is a powerful one that Congress can use to influence, but not directly control, water policy.

In addition to parts of the federal Clean Water Act and Safe Drinking Water Act, the National Flood Insurance Program and the various federal farm acts have used the federal government's spending power to implement voluntary programs that have a significant impact on water policy. From a federal perspective, these programs are not regulatory in nature as they do not require cities to regulate floodplain development or for farmers to farm the land in a certain way. And because of this, Congress does not have the burden of showing how these programs relate to their power to regulate interstate commerce. Both programs, however, have had and will likely continue to have a significant influence on how the nation's floodplains are managed and how farmers farm.

Another important manifestation of the federal spending power is the ability of the federal government to collect and analyze water information and perform water research. Federal agencies like the Corps, NOAA, USDA and EPA have extensive data collection and analytical capabilities, the results of which are often used by federal, state and local agencies in developing water policy. The Corps, for instance, can provide states and local governments with floodplain information and mapping through their Floodplain Management Services Program. The U.S. Geological Survey collects and publishes data on surface and groundwater quantity and quality. The EPA provides guidance on the toxic properties of various chemicals and compounds on aquatic life. These and many other federal data collection and research efforts are often critical to establishing the science needed for effective water policy and often guide federal, state and local efforts.

Interstate conflicts

The federal courts are often called upon to resolve interstate water issues. To the extent the court's decisions in these matters call for specific actions or places specific limitations on the involved states, such decisions become the "law of the land" and are binding regardless of any conflicting state or local laws or policies. Many of the interstate water conflicts have involved water quantity — how much of an interstate river's flow each state gets. Colorado and Kansas, for instance, have often butted heads over who gets how much of the flow of Arkansas River that originates in Colorado and flows through Kansas, with those disputes being decided by federal judges. But some disputes have also involved water quality. Oklahoma and Arkansas have often tangled over water quality issues on interstate rivers with the disputes ending up in the federal courts.

Both Congress and the Supreme Court generally want states to solve their interstate water conflicts among themselves before seeking federal intervention and adjudication. Some states have entered into mutual interstate agreements or compacts as to how water is managed among the states or on interstate rivers — often as a result of previous state-to-state water conflicts. Under the U.S. Constitution, Congressional approval is required for interstate compacts that contain legally binding provisions and any such provisions in Congressionally-approved compacts generally supersede any conflicting state laws or policies. Examples are the 1922 Colorado River Compact that allocates the Colorado River water among seven western states and the Ohio River Sanitation Commission (ORSANCO) that carries out water quality improvement activities in its eight member states. Once

approved by Congress, the various provisions and limitations in those compacts become the law of the land and override any conflicting state laws.

Federal land management

Another way the federal government can have a significant effect on state water policy is by virtue of federal land ownership. Under the supremacy principle, federal lands are not subject to state requirements unless Congress has specifically said so. This is especially important in states that have a significant amount of their land in federal ownership, as do many western states. Water in a river flowing through federal lands might, for instance, be used in a way that is contrary to a state's water rights laws. Absent a Congressional directive to comply with state water rights laws, the federal government has no legal responsibility to obey state water laws for federal property.

State governments

State governments are generally assumed to have the power to do a lot of things in the general interest of its citizens — the public welfare. This is an assumed power based on common law and state sovereignty; states do not have to point to a specific grant of authority in their state constitutions. If not specifically prohibited by the U.S. Constitution (and the Constitution does prohibit a few things) or their respective state constitutions, states' so-called "police powers" can be used to regulate just about anything and are only constrained by a need to show a justifiable public interest and to satisfy constitutional tests of equal protection, due process, and regulatory taking. Virtually all the laws passed by state legislatures that regulate activities, including those that regulate individual behavior in some way, are an exercise of a state's police power.

Many states have passed laws that control pollution, regulate land use or affect water withdrawal or usage in some way and these laws generally have been held to be legitimate exercises of the state's police powers as they are in the public's interest and are not specifically prohibited by the U.S. Constitution. In other words, states generally have a free hand to regulate activities that affect water as they see fit, as long as they can demonstrate a public interest in doing so and the regulations are not more restrictive than needed to achieve the intended purpose. States' sovereignty in water matters is, however, far less clear when Congress has passed laws dealing with the same subject matter.

Take, for instance, the matter of regulating discharges of domestic and industrial waste from sewers. Iowa and many other states had adopted laws dealing with sewage long before the 1972 amendments to the Federal Water Pollution Control Act.[3] Beginning in 1972, the federal government has required a permit for such discharges into a water of the United States. This created a "dual authority" situation in states that already had pollution laws. A discharger in these states would potentially have to obtain two separate permits and comply with two sets of permit requirements, requirements that could potentially conflict with each other. To the extent state requirements differed with federal requirements, the federal requirements would prevail under the Constitution's Supremacy Clause.

Congress addressed the dual authority issue by saying that if states have state-authorized programs that essentially do the same things as required by the Clean Water Act and meet EPA's rules, the federal government can "suspend" issuing federal discharge permits. If a state's program measures up to the standards set by the EPA, a discharger in that state would only need to get a state permit and comply with state-adopted standards. State primacy - where a state essentially carries out a program for the federal government - is a key objective of the Clean Water Act. Congress did not nor could they give a state the authority to carry out their own program; it simply said that where a state has a similar program established under state authority the federal government does not have to issue federal permits. The EPA's role in such primacy states is then one of oversight — making sure states have the right

[3] The 1972 amendments along with successive amendments are generally known as the federal Clean Water Act.

requirements in place and enforce them. A similar approach is used for other regulatory programs such those authorized by the Safe Drinking Water Act and the Federal Insecticide, Fungicide, and Rodenticide Act.

An important issue for such "delegated primacy" programs is how prescriptive the federal rules implementing the program are. If the federal statute and the rules implementing a program only establish generally broad objectives and goals, states have a fair amount of flexibility in tailoring program requirements to the situations in their states while at the same time satisfying the national interest. When the scope of federal rules and agency oversight are detailed and specific and approach micromanagement, it leaves states with little wiggle room to stray too far from federal rules, other than to adopt more stringent requirements. In effect, the federal government is saying to states "If you don't do it our way, we'll do it and our actions will always trump yours."

Two of the more visible effects of federal supremacy in water programs involve the Clean Water Act and the Safe Drinking Water Act. The Clean Water Act requires a permit for the discharge of pollutants from point sources (Section 402) and the placement of dredge and fill materials (Section 404). Additionally, the Clean Water Act requires the EPA to adopt water quality standards for a state if a state does not adopt state water quality standards that closely comport with EPA rules and guidance. The Safe Drinking Water Act establishes minimum standards for the water provided to people by public water supply systems and state drinking water regulations generally must reflect those requirements to gain program primacy.

Most states have adopted state laws that allow them to carry out the Section 402 program and most, if not all, of the regulatory portions of the Safe Drinking Water Act. In addition, most states have EPA-approved state water quality standards that were adopted in accordance with their own state laws. Failure of a state to measure up to the EPA's expectations will eventually result in the federal government taking back primacy in these program areas. In effect, states have relatively little sovereignty left in these program areas as the federal government has said it is in the national interest to have national programs to control the discharge of pollutants and to provide safe drinking water and if states don't carry out these programs in accordance with the EPA's expectations, the federal government will.

One water area where states still rule is water use — who gets to use how much. Water rights laws (statutory and common law) vary considerably from state to state. Most western states use a prior appropriation approach (first in time, first in right) while eastern states generally subscribe to the riparian doctrine (every one shares more or less equally). Beyond those two basic doctrines, however, no two states are exactly alike and each state's water rights law is unique to that state. Other than adjudicating interstate conflicts or approving interstate compacts appropriating the rights to interstate waters, the federal government has largely resisted the urge to pass a national water rights law that would effectively gut state water appropriation laws. This likely is more a matter of Congressional will (or lack thereof) than a lack of authority as Congress' commerce power surely could provide the authority for a national water rights program. If global warming and continued development pressure in water-poor states results in more state-to-state fights over water resources, the possibility exists that Congress at some time in the future might find it necessary to enact such a program in the national interest.

Like the federal government, states also have the power to spend for public purposes. State owned roads and parks and preserves are two examples of state powers to acquire and manage land. A number of states, including Iowa, have specifically authorized state agencies to construct and manage state water projects such as levees and dams.

Local governments and special districts

Local governments are creations of the states; in the absence of state authority in the form of state constitutions or legislation specifically creating or authorizing local governments there would be no local governments that might regulate or plan for the use of water. And local governments, once created, generally can only exercise those specific powers granted to them by the state constitution or their legislature. In Iowa, for instance, the Iowa General Assembly has specifically granted cities and counties the power to control land use through zoning providing it's done in a manner prescribed in the authorizing legislation, which includes the requirements to prepare a comprehensive zoning plan and to appoint a zoning commission and board of adjustment.

In addition to specific grants of authority to local governments, a number of states including Iowa have provided local governments with a generally broad grant of power in the form of so-called "home rule" powers. The general concept behind Iowa's home rule grant is that cities and counties can exercise any power relating to local affairs and government as long as it is not inconsistent with state legislation or specifically prohibited. However, the Iowa General Assembly retains concurrent and superior power over a local government and can preempt a local government's powers in a certain field. An example of this preemption is animal feeding operations. Since the Iowa General Assembly has passed laws directing the Department of Natural Resources to regulate animal feeding operations, Iowa courts have generally ruled that counties cannot regulate animal feeding operations under their home rule powers. In 1998, the General Assembly passed a law that specifically prohibits counties from regulating animal feeding operations under their home rule powers.

Although counties and cities (or, in some states, villages, towns, parishes, etc.) are the primary local governmental units, state legislatures often create special purpose districts with governing bodies. Iowa statute, for instance, authorizes the formation of drainage districts on an intra- or inter-county basis and these districts have specific powers to construct and maintain drainage improvements and to assess the cost of such to those that benefit. The powers of the governing bodies of such special purpose districts are limited and specific to the purpose the special districts were created.

IV. Federal water laws, policies and programs

Section III examined the powers the federal government, state governments and local governments have to implement water policy. States are generally held to have relatively unlimited powers to regulate water and activities that affect water, as long as a public purpose in doing so can be justified. At first look, the federal government's constitutional powers over water issues appear to be limited as Congress' only powers are those enumerated in the U.S. Constitution and nowhere does it expressly say the Congress can regulate water or activities that affect water. But, in fact, Congress' power to regulate interstate commerce has proved to be a very potent power to regulate water-associated activities. Given the interstate nature of water and water's importance to daily life, the commerce power could potentially be used to expand the federal jurisdiction over water issues beyond what currently exists. And due to the supremacy clause of the U.S. Constitution, federal laws and rules trump state laws and rules dealing with the same matters.

This section takes a closer look at the legislation, policies and programs at the federal level that deal with water in some way. An exhaustive list of all federal laws and programs that could potentially affect water policy in some way would be a very long one given the importance of water to virtually every facet of our daily lives. The following discussion highlights just the more important ones that affect Iowa water policy.

Clean Water Act

The impact of the federal Clean Water Act (CWA) on state water policy is undeniable as it significantly influences, or even dictates, water quality policy in virtually every state.[4] What's commonly called the CWA is actually a series of amendments to the Federal Water Pollution Control Act (FWPCA) of 1948, which was the nation's first attempt to deal directly with water pollution on a national scale. The 1948 Act charged the federal government with providing research in water pollution and funding for sewage treatment plants but left much of the regulatory aspects of pollution control up to the states. Although successive amendments strengthened the federal government's role somewhat, the 1948 Act was a weak and relatively ineffective piece of legislation that was further constrained by cumbersome and time-consuming enforcement proceedings.

The 1972 amendments to the FWPCA were amendments in name only; Congress essentially wiped the slate clean and began anew. Substantive amendments to the 1972 legislation were also passed in 1977, 1981 and 1987. The body of law comprising the 1972 and successive amendments is collectively known as the CWA although the official title remains the Federal Water Pollution Control Act. Since 1987 there have been no major changes to the Clean Water Act.

The CWA consists of six titles and 94 individual sections with many subsections, paragraphs and subparagraphs under these sections. Some of these sections have outlived their usefulness (such as the ones pertaining to the construction grants program which is no longer in effect) while other sections are very much alive and dictate the current national water quality policy. A complete and through description of all the CWA provisions and nuances would require many pages; the intent here is to provide a general overview of some of the more important provisions and programs. (Note: The various sections of the CWA referenced below refer to the same-numbered sections of the 1972 bill that amended the Federal Water Pollution Control Act (PL 92-500). Later amendments also referred to the 1972 amendments by section number. The 1972 and later amendments are codified in the U.S. Code under Title 33, Navigation and Navigable Waters, Chapter 26, Water Pollution Prevention and Control and legal documents typically provide USC citations (e.g., Section 101 of the CWA is codified as 33USC§1251)).

[4] The term "state" as used here includes individual states, the District of Columbia, the various commonwealths and trusts of the U.S., sovereign Indian tribes and interstate organizations with the authority and power to carry out the various provisions of the CWA within their jurisdictions.

Goals and policy

Congress' overall water quality goals and policy are set forth in Title I of the CWA and Section 101 is especially important. In matters involving CWA disputes where the meaning of a particular CWA term, provision or section is in doubt, the courts often look to Congressional intent and Congressional intent is found in Title I.

Section 101 provides the objective of the CWA: to restore and maintain the chemical, physical and biological integrity of the nation's waters. Interestingly, the term "clean water" is not used anywhere in the Act itself; the only place it is used is in the short title of the 1977 amendments. The link between the chemical properties of water and biological integrity are obvious but Congress also realized the physical characteristics of a water body, which include channel habitat and flow, also play an important role and cannot be ignored; thus the inclusion of physical integrity as an objective. To help achieve the stated objective, Section 101 establishes a goal of the elimination of the "discharge of pollutants into navigable waters". "Discharge of pollutants" as defined in the CWA, however, only refers to the discharge of pollutants from point sources.[5] Congress also established an interim goal, wherever attainable, "…of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." This interim goal is the so-called "fishable, swimmable" goal that most of the present-day CWA programs are aimed at achieving.

Other especially important national policy provisions contained in Title I are summarized below:

- The discharge of toxic pollutants in toxic amounts is to be prohibited;
- The primary rights and responsibilities of states to prevent, reduce and eliminate pollution and to plan the development and use of land and water resources are to be recognized, preserved and protected;
- The authority of each state to allocate quantities of water within its jurisdiction is not to be superseded, abrogated or otherwise impaired by the Act;
- The EPA shall consult with states in the exercise of the EPA's authority under the Act;
- Programs for the control of nonpoint sources of pollution are to be developed and implemented so the goals of the Act can be met through the control of both point and nonpoint sources of pollution;
- The intent is to have states implement the permit programs under Sections 402 and 404; and
- The EPA, in cooperation with other federal agencies, state water pollution control agencies, interstate agencies and the municipalities and industries involved, is to prepare or develop comprehensive programs for preventing, reducing, or eliminating the pollution of navigable waters and ground waters and improving the sanitary condition of surface and underground waters.

It is apparent from a reading of Title I that Congress intended the CWA programs be a cooperative partnership between states and the EPA rather than a one-way street where the EPA simply dictates national water quality policy.

Water quality standards

Section 303 establishes an expectation that individual states, using their own respective legislative authorities, will adopt state water quality standards that will be consistent with the goals and

[5] As defined in the CWA, a point source is any "…discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." "Agricultural stormwater discharges" and "return flows from irrigated agriculture" are specifically excluded; such sources are considered nonpoint sources and as such are not subject to the CWA's permit requirements.

objectives of the CWA and, in particular, provide for "fishable, swimmable" waters. In general, water quality standards are to consist of the designated uses of waters and numeric or narrative criteria to protect those uses. In establishing such designated uses and criteria, states are to consider their waters' uses and value for public water supplies, propagation of fish and wildlife, recreational purposes and agricultural, industrial and other purposes including navigation. In addition, states are expected from "time to time" but not less than once every three years to review their standards and make appropriate changes as needed.

Although the CWA establishes an expectation that states will adopt water quality standards compliant with the CWA, states are not legally required to do so. To address the potential problem of recalcitrant states, Congress provided the EPA with strong oversight powers and gave them the authority to promulgate water quality standards for a state if a state fails to adopt compliant standards. State water quality standards adopted to fulfill the CWA's expectations are to be submitted to EPA for approval. If the EPA finds a state's standards are not compliant with the CWA and EPA's implementing regulations and the state does not make the appropriate changes in a reasonable time, the EPA must then promulgate appropriate standards for that state. Those federally-promulgated standards would then be used to carry out the provisions of the CWA in that state. The EPA also has the authority to review a state's standards on their own initiative and seek appropriate changes for non-compliant state standards.

While the CWA requires that state standards be consistent with the requirements of the CWA to gain EPA approval, it contains almost no detail regarding the minimum requirements for state standards. That level of detail is found in the EPA's administrative rules and guidance documents.

Most states have EPA-approved standards but the EPA has also promulgated water quality criteria for individual pollutants for a number of states. The extent to which states can tailor their own water quality standards to their own liking versus more or less uniform standards for all states is a matter of some controversy, often brought to the forefront by third-party challenges that a state's standards "violate" the CWA. There's no federal law that prevents a state from adopting state water quality standards that are completely contrary to the CWA; the issue in these third-party challenges is whether the EPA erroneously approved state water quality standards or should promulgate standards to overcome any state inconsistencies.

Information and research

The CWA charges the EPA with a number of duties regarding water quality-related research and information. Some of the more important ones are found in Section 304.

Subsection 304(a) requires the EPA to develop and publish criteria for water quality reflecting the latest science on the effect of various pollutants on aquatic life, recreation, beaches, etc. States are generally expected to adopt, as part of their state water quality standards, numeric criteria for those pollutants or substances for which the EPA has published 304(a) criteria. For instance, the EPA in 1999 updated their 304(a) criteria document for ammonia. This document reflected the latest findings on the toxicity effects of ammonia on various aquatic organisms — what levels of ammonia cause what effects on what organisms. The EPA's expectation is that states' water quality criteria will reflect the toxicity information in the most recent 304(a) documents. States do have some flexibility to develop site-specific ammonia standards that deviate somewhat from the criteria document recommendations but have the burden to show that any such deviations will be protective of the aquatic life in their waters.

Other subsections within Section 304 require the EPA to develop performance standards for point sources of pollutants. Although a variety of terms such as "best practicable control technology currently available" and "best available technology economically achievable" are used to define these performance standard goals, the intent is to have the EPA define the level of pollutant reduction that would be expected from a well-run facility with a reasonable level of technology. These so-called

"technology-based" effluent standards are then used to define the minimum level of pollutant reduction required for a Section 402 discharge permit. The EPA is also expected to review and revise these effluent standards from time to time to reflect new technologies.

Regulatory provisions — Section 402 and 404 programs

Most of the regulatory muscle of the CWA stems from Section 301 which prohibits the discharge of pollutants into the nation's waters unless such discharges comply with the various provisions of the CWA and in particular Sections 402 and 404. Sections 402 and 404 establish permit programs and any "discharge of pollutants" not authorized by either a Section 402 or 404 permit is considered to be in violation of Section 301. "Pollutant" is broadly defined and includes dredge spoil, solid waste, sewage and sewage sludge, biological materials and heat. At first look, Section 301 appears to give the EPA sweeping regulatory powers over any and all sources of surface water pollution. However, a critical limitation on this power is found in the CWA's definition of "discharge of pollutants". By definition, "discharge of pollutants" only pertains to point source discharges and also by definition "agricultural stormwater discharges" are specifically excluded as a point sources. These critical definitions essentially limit the CWA's regulatory power to point sources of pollutants and exempt many agricultural operations from CWA regulatory authority.

The regulatory powers of Sections 301, 402 and 404 draw on Congress' power to regulate interstate commerce as their Constitutional authority and that's why many of the court cases involving these programs, especially the Section 404 program, either directly or indirectly address Congress' interstate commerce power in their decisions.

Section 402, the NPDES (National Pollutant Discharge Elimination System) program, is the CWA's regulatory centerpiece insofar as improving the chemical quality of water. Other than discharges of "dredge and fill material" that are handled under Section 404, virtually all discharges of pollutants from point sources to a water of the United States are subject to Section 402 requirements. In addition to the more defined point sources such as wastewater treatment plant effluent discharged from a pipe, NPDES permits are also required for the runoff from industrial and construction sites as well as municipal storm sewers. As mentioned above, "agricultural stormwater discharges" are excluded as point sources but "concentrated animal feeding operations" are specifically included. However, the Act doesn't further define what "concentrated" means and Congress left it to the EPA to define through rulemaking exactly what distinguishes a *concentrated* animal feeding operation from all others.

Section 402 NPDES permits typically contain conditions that place limits on the concentration and amounts of various substances that can be discharged. For instance, the NPDES permit for a domestic wastewater treatment plant might authorize the discharge of treated wastewater but specify the maximum concentration of ammonia allowed or place a "pounds per day" limit on the total amount of ammonia that can be discharged. At a minimum, the effluent limits must reflect the technology-based standards developed by the EPA under Section 304. If the water quality of the receiving water body will not meet its water quality standards after imposition of the technology-based effluent limits, then stricter effluent limitations, known as water quality-based effluent limitations, may be required if the discharge contains pollutants or substances that cause or contribute to non-attainment. These water quality-based effluent limits are determined on a case-by-case basis and placed in the permit. Permit holders are generally required to monitor their effluent to demonstrate compliance with their permit limits. Due to the variable nature of runoff from industrial and construction sites as well as municipal storm sewers, the permits for these point sources are less specific and typically require the permittee to develop a pollution prevention plan that utilizes best management practices.

Section 402 establishes a federal discharge permit system but also provides that the EPA can "suspend" issuance of federal discharge permits in those states with similar, state-authorized permit programs that meet minimum CWA requirements. The CWA contains specific procedures for granting, and withdrawing, state primacy in the Section 402 program. In general, the EPA must

determine a state program will be equivalent to or be more protective before primacy can be granted. States must also have an EPA-approved continuing planning process as a condition of primacy. Most states including Iowa have been granted primacy in the NPDES program although from time to time various groups have petitioned the EPA to withdraw primacy due to real or perceived inadequacies in a state's program. The EPA's role in primacy states is one of oversight, making sure the program is properly run. In addition to withdrawing primacy for significant state program problems, the EPA can also object to individual state-issued permits and "take over" a particular permit.

Whereas Section 402 is primarily aimed at protecting and restoring the chemical integrity of the nation's waters, Section 404 is primarily intended to protect the physical integrity of water bodies by regulating the discharge of dredged or fill material into the nation's waters. Filling a coastal mangrove swamp to establish building lots, for example, would require a permit. Building a dam on a river would be considered a discharge of fill material and likely require a Section 404 permit. The 404 program does not necessarily prohibit the draining of wetlands or alteration of the physical characteristics of a water body but if the action needed to do so would result in a discharge of material into a water of U.S., a Section 404 permit likely would be needed. And, a Section 404 permit might be denied if the action destroyed the physical integrity of the water body or would have an adverse environmental impact.

The Corps of Engineers, not the EPA, is responsible for issuing Section 404 permits. Like the Section 402 program, states can assume primacy but few states have done so and the Corps remains the primary Section 404 permitting entity for most areas of the United States.

To alleviate the administrative workload involved with issuing numerous individual Section 404 permits for relatively minor activities, Section 404 provides for the issuance of general permits on a state, regional, or national basis that authorize categories of activities. The activities authorized by such general permits must have only minimal adverse environmental effects when performed separately and have only minimal cumulative adverse effects. Additionally, general permits can only be issued for a maximum of five years.

Currently, the Corps has issued 49 general permits that are applicable nationwide as well as a number or regional and state-specific general permits. These general permits contain specific limitations and conditions to insure the environmental effects will be minimal. Nationwide general permit number 13, for instance, authorizes bank stabilization projects needed to control bank erosion provided the project affects less than 500 ft of bank, won't use more than one cubic foot of material per foot of bank, and meets a number of other provisions and conditions. Any bank stabilization project not meeting those specifications and limitations would need an individual Section 404 permit and the Corps would evaluate the potential environmental impacts on a case-by-case basis.

The Section 404 program has faced numerous legal challenges from the outset, with many cases ending up in federal appellate courts up to and including the U.S. Supreme Court. Although many of these cases have involved the nuances of Corps rules and whether the program restrictions constituted a "taking" for a particular situation, others have challenged the very Constitutional authority of the program. One of the more unsettled questions is what constitutes a "water of the United States"? Section 404, as well as Sections 301 and 402, refer to discharges to or into "navigable waters" in defining their jurisdictional reach with "navigable waters" being defined in the Act as "waters of the United States". Congress has not further defined a water of the U.S. and the federal courts are left with the tasks of determining the intent of Congress in using the term "navigable" and to what extent the federal government's commerce power can be used to regulate activities on small or isolated water bodies. This question is unlikely to be settled with any certainty anytime soon.

Section 401 water quality certification

The supremacy clause of the Constitution generally means that any federal action, such as the issuance of a federal permit, will trump any state action or state law that might be contrary to such action. However, Congress placed some limitations on federal supremacy in Section 401 of the CWA. That section requires any applicant for a federal license or permit that would authorize an activity resulting in a discharge of a pollutant or pollutants to the nation's waters to obtain certification from the respective state water quality agency that any such discharge will not violate any CWA-associated regulatory requirements including any EPA-approved state water quality standards.

This so-called Section 401 certification provides a powerful tool for states to insure federally-authorized projects consider state water quality concerns as a federal permit or license authorizing an activity cannot be issued until state certification is received. Corps Section 404 permits (both individual and general permits), for instance, require state water quality certifications and the respective states can either deny certification or place limitations or conditions on their certification. Similarly, a Federal Energy Regulatory Commission license that authorizes a hydropower project involving a discharge of dredged or fill material couldn't be issued without a state water quality certification.

Impaired waters and total maximum daily loads (TMDLs)

Subsection 303(d) charges states with preparing a list of waters within its jurisdiction for which the imposition of technology-based effluent limits for point sources will not result in the attainment of water quality standards applicable to a particular water body. For the listed waters, often referred to as a state's impaired waters, states are also to establish a total maximum daily load (TMDL) for the pollutants the EPA has determined are suitable for TMDL calculations. The loads must be calculated so as to attain the relevant water quality standards with seasonal variations and a margin of safety. The EPA by means of publication in the Federal Register in 1978 opined that all pollutants are suitable for such load calculations.

The impaired waters list and associated TMDLs are to be submitted to the EPA for approval from "time to time". If approved, the calculated loads are to be the basis of water quality-based effluent limits for Section 402 discharge permits. For instance, if a TMDL shows that the total maximum daily load of ammonia that can be discharged to stream without violating in-stream ammonia standards is 1000 pounds, this load must be allocated among the various point and nonpoint sources in the stream's watershed and the point source allocation divided up among the various point sources and placed in their Section 402 discharge permits. If the EPA disapproves a state-submitted impaired waters list or TMDL, then the EPA must then generate an acceptable list or TMDL. The EPA-developed list or TMDL would then be used for carrying out the various provisions of the Clean Water Act.

Despite the "shall" language in Subsection 303(d), the CWA does not legally require states to prepare impaired water lists and to calculate TMDLs. In fact, most states ignored this requirement for many years. The wording of 303(d) is such that it appears to limit the EPA's authority to approving or disapproving the lists and TMDLs once submitted and the EPA for many years felt it had neither the legal requirement nor authority to prepare lists or TMDLs when states failed to do so. This interpretation changed when the federal courts ruled that a state's continued failure to submit such lists and TMDLs constituted a "constructive submittal" of inadequate lists and TMDLs which then required the EPA to do so.[6] States suddenly found themselves in the situation of having to either prepare the lists and associated TMDLs or let the EPA do it. A number of similar lawsuits followed, often ending in negotiated settlements between the plaintiffs, usually environmental organizations, and the EPA with the agreement often specifying the timetable for completing TMDLs. Some states

[6] The 1984 case *Scott v. City of Hammond* (741 F. 2d 992) was one of the first cases to advance the "constructive submittal" theory.

joined in the settlements and the states that are a signatory party to those agreements are, in fact, legally bound by the agreement as they are mandates from a federal court.

The TMDL program has been challenged on a number of fronts including whether TMDLs had to be calculated for waters only affected by nonpoint sources of pollutants (i.e., the impairment was due solely to nonpoint sources that are not regulated under the CWA).[7] The issue in one of the most recent legal challenges was whether the required TMDLs could be expressed in terms other than daily loads. The EPA argued that daily loads are not appropriate for some pollutants, especially some nonpoint source pollutants, and that expressions like total annual loads would be more appropriate. The federal appellate court in that case ruled the language of Subsection 303(d) meant just that - daily loads - and not something else.[8] The court also noted the EPA previously declared all pollutants were suitable for total maximum daily load calculations.

Grant programs

The CWA authorizes federal grants to states under a number of its sections, but Sections 106, 319 and 601 are the mainstays of present-day CWA grants to states for water quality activities.

Section 106 is the "general purpose" grant program as grant funds provided under Section 106 authority can be used for a variety of water quality activities including enforcement actions. By statute, the distribution of Section 106 funds among states is to be based on the "extent of the pollution problem in the respective States", so the states that demonstrate the greatest problems get a proportionately larger share of the funding pie. The current formula for allocating Section 106 funds is contained in EPA administrative rules and includes, among other things, the number of impaired waters as determined under Section 303(d).

Section 106 funds cannot be awarded to a state unless a state:

- Has a program to collect and analyze water quality data and biennially submits to the EPA a report (generally known as a Section 305(b) report) summarizing the data;
- Submits an annual program plan for the prevention, reduction and elimination of pollution; and
- Is effectively enforcing the provisions of any state-issued permits authorizing the discharge of pollutants from point sources.

Section 319 authorizes state grants for implementation of state nonpoint source management programs and groundwater quality protection programs related to nonpoint source pollution control. For states to be eligible for Section 319 grants they must prepare and periodically update a nonpoint source management plan that, among other things, identifies nonpoint source best management practices that will be undertaken to reduce pollutant loads from various categories of nonpoint sources, identifies the regulatory and nonregulatory programs that will be used to implement those best management practices and a schedule with implementation milestones. Additionally, the federal funds cannot be used for more than 60 percent of the nonpoint source program costs (i.e., a 40% non-federal match is required) for the regular nonpoint program. For groundwater protection, the maximum is 50 percent.

At one time, Clean Lakes funds were available under Section 314 and while this authority still exists no funding is currently available under Section 314.

Section 601 authorizes federal grants to capitalize state revolving loan programs. The CWA originally authorized state grants for the purpose of constructing publicly-owned wastewater treatment plants.

[7] *Pronsolino v. Nastri*, 291 F.3d 1123, 1130 (9th Cir. 2002). The court ruled that TMDLs were required for waters affected only by nonpoint sources of pollution.
[8] ***Friends of the Earth, Inc. v. EPA,*** No. 05-5015 (D.C. Cir. 2006).

In 1987, the construction grant program was replaced by authorization for grants to states for state revolving loan programs. The intent was for the federal government to capitalize these state revolving loan programs to the point where they were self-sustaining and no further federal capitalization grants were needed. However, Congress is still appropriating funds for capitalization grants and it is not known when, or if, these capitalization grants will cease. The available funds are allocated to states using the same formula used for the original construction grants program (Iowa's share is set at 1.3976 percent).

In summary, the CWA contains a number of regulatory and non-regulatory provisions that significantly influence state water quality programs. States are not legally required to carry out any of the CWA regulatory programs or to accept the federal funds authorized by it. In fact, a state could adopt state water quality laws and regulations that were completely contrary to the CWA and not violate any federal laws by doing so. To the extent any state laws or regulations were inconsistent with the regulatory provisions of the CWA and the EPA's implementing regulations, however, the federal provisions would prevail. An activity that didn't violate state law but did violate the CWA and its implementing regulations would then be subject to federal enforcement actions authorized under the CWA. In addition, CWA grant funds would not likely be available to states that had water quality programs that were not consistent with the CWA. States are free to completely ignore CWA requirements but in the end it would be foolish to do so.

The one area where states still have a significant degree of flexibility under the CWA is nonpoint sources of pollution. While most states receive Section 319 grant funds and prepare nonpoint source management plans, the CWA does not provide the EPA with regulatory authority over nonpoint sources nor does Section 319 require states to regulate them as a condition of grant funding. Congress would arguably have the authority to require the EPA to regulate nonpoint sources as it does point sources or to require state controls as a condition of Section 319 funding. With the growing realization that many of the remaining water quality problems cannot be solved without addressing nonpoint sources of pollution, it may only be a matter of whether states acting individually and collectively can effectively address this issue before Congress decides it is a matter of national importance justifying a national regulatory program for nonpoint sources.

Safe Drinking Water Act

The federal Safe Drinking Water Act was originally passed in 1974 with significant amendments being adopted in 1986 and 1996. Like water quality prior to 1972, the federal government's regulatory role in drinking water prior to 1974 was limited and the 1974 Act was the first step towards federal regulation of public drinking water supplies.

Like the Clean Water Act, the Safe Drinking Water Act includes a mix of regulatory and non-regulatory programs to achieve its objectives and envisions a state-federal partnership where states can, but are not legally required to, carry out the regulatory provisions of the Act under a primacy agreement with the EPA.

The regulatory requirements of the Safe Drinking Water Act apply to all public water supplies. Public water supplies as defined in the Act are those entities that provide drinking water to at least 15 service connections or serve at least 25 people per day for 60 days of the year or more. That not only includes municipal water supply utilities and rural water systems but can also include businesses, schools, convenience stores, campgrounds, rest areas and churches that have their own water supply such as a private well.

The regulatory cornerstone of the Act is the establishment of drinking water standards that all public water supplies must meet. The most recognizable of these standards are the so-called MCLs (maximum contaminant levels) for contaminants that can pose a health risk to those that drink the water. MCLs have been established for a wide array of substances including microbial contaminants, pesticides and metals and the EPA is continuing to add new MCLs and reevaluate existing ones as additional information

becomes available. Public water supplies are required to monitor the water provided to its customers to insure it meets these MCLs. It may be difficult or not practical to establish an MCL and monitoring protocol for some contaminants and for these contaminants minimum treatment techniques, such as filtration and disinfection for viruses and other microbes, have been established instead of MCLs. Both MCLs and treatment techniques are placed in a public water supply's operation permit and are enforceable standards. The EPA also establishes non-enforceable standards for such things as taste, odor and color that don't pose a significant health risk but may affect consumer perception and satisfaction.

Other regulatory provisions of the Safe Drinking Water Act include the requirement for a facility to notify the public if they are not in compliance with the conditions of their operation permit and to publish annual consumer confidence reports (only required for some public water supplies).

The Safe Drinking Water Act also established an Underground Injection Control (UIC) program that regulates the construction, operation, and closure of injection wells that place fluids underground for storage, disposal or other purposes. Injection wells are used for a variety of purposes including oil and gas extraction and can endanger underground sources of drinking water if not done properly. The agricultural drainage wells found primarily in north-central Iowa are considered injection wells and come under the UIC regulatory umbrella.

To gain primacy for the drinking water program, states must demonstrate they have the state authority, legislation and programs to regulate public drinking water supplies and have standards at least as stringent as the national standards. The Safe Drinking Water Act also authorizes grants to states for a variety of drinking water related compliance and enforcement activities as well as capitalization of state drinking water revolving loan programs. States are also required to conduct source water assessments, to insure new public water supplies have the technical, financial and managerial capacity to provide safe drinking water, and to carry out an operator certification program as a condition of the grants. Failure to do so results in a portion of a state's available grant funds being withheld.

As for the Clean Water Act, the Safe Drinking Water Act does not legally require states to do anything as the responsibility to regulate public drinking water falls on the EPA if states do not assume primacy in the program. And like the Clean Water Act, states find themselves in the position of either having to adopt state standards that closely comport with or are stricter than the EPA-promulgated standards or to cede control over public water supplies to the federal government.

Endangered Species Act

The federal Endangered Species Act (ESA) of 1973 was passed to protect plants and animals that the federal government determines are threatened or endangered. Water related actions such as the construction of dams, flow regulation, channel construction, and pollutant discharges are all actions that potentially could affect threatened or endangered species in some way. Sections 7 and 9 of the ESA are especially important.

Section 7 requires federal agencies to insure that their various actions are not likely to jeopardize a federally-listed threatened or endangered species. The federal actions subject to Section 7 include federal water resource projects, federal permits such as Section 404 dredge and fill permits and Section 402 discharge permits, and the EPA's approval of state water quality standards. If a federal agency's action might affect a federally-listed threatened or endangered species, they are required to consult with the U.S. Fish and Wildlife Service (or the National Marine Fisheries Service for coastal waters and the Great Lakes) to identify potential impacts and to seek alternatives that would comply with the Act. When the EPA reviews state-adopted Water Quality Standards submitted to comply with the Clean Water Act, the EPA routinely consults with the Fish and Wildlife Service to determine if any changes to those standards could potentially affect a federally-listed species.

Section 9 applies to everyone, not just federal agencies, and prohibits the "taking" of a federally-listed threatened or endangered species. Destroying the habitat of a threatened or endangered species is also considered a taking within the meaning of Section 9. This section can also have a significant impact on state water policy as any state, local or private action that would result in a taking of a threatened or endangered species would violate Section 9, even if a federal permit was not required for the activity. A diversion of water from a river, for instance, might not violate the Clean Water Act or state water rights laws but could potentially violate the ESA if threatened or endangered species were present in the river or there was a reasonable potential for them to be present.

U.S. farm policy

Agricultural land use — what crops are grown, how they are grown, and where they are grown is significantly influenced by federal farm policy. In states like Iowa with approximately 90 percent of its land used for some type of agriculture, agricultural land use can have a significant impact on water quality and quantity. State water policy needs to consider the impact of federal farm policy as efforts to significantly improve water quality may require a change in federal farm policy.

Many factors including international trade influence federal farm policy but a primary focus of federal farm policy since the 1920s has been to support farm income and provide a stable agricultural sector that is somewhat buffered from the "boom and bust" cycles of earlier years. Federal farm policy has largely been established by means of various farm acts that have used a variety of market-based mechanisms including subsidies, acreage allotments, production quotas and import and export controls. Two acts, the Agricultural Adjustment Act of 1938 and the Agriculture Act of 1949 established provisions with no expiration dates but about once every five years Congress enacts a new act that suspends portions of these two "permanent" acts and establishes the policy for the next five or so years, as specified in the legislation. As such, federal farm policy continues to evolve with each new farm act rather than being a static policy. Some programs and policies from the previous act are carried over and continued, some discontinued, and new ones enacted. The 1985 Food Security Act and the 1996 Federal Agricultural Improvement and Reform Act (aka Freedom to Farm Act) are two farm bills, for instance, that established new policy directions rather than continuing all the policies of the previous acts. If a new act is not passed before the expiration of the current act, federal farm policy reverts to the permanent provisions in the 1938 and 1949 Acts.

In addition to influencing agricultural production, the farm acts also contain conservation provisions that can have significant impacts on water quality. Some of the current conservation provisions include the following:

- Requirements for conservation tillage to reduce soil erosion on hillier land that is more vulnerable to erosion;
- Restrictions on draining or destroying wetlands including farmed wetlands;
- A conservation reserve program (CRP) that pays farmers to establish perennial vegetation on lands not particularly suited for crop production or for purposes like establishing riparian buffers;
- A wetland reserve program (WRP) that pays farmers to restore wetlands; and
- The Environmental Quality Incentive Program (EQIP) that provides cost share funds for implementation of a variety of best management practices aimed at improving soil and water resources.

Many of these conservation provisions were first introduced in the 1985 Food Security Act and have been continued in some manner with successive farm acts.

The various conservation programs and provisions in the farm bills are not regulatory in that they only establish requirements such as conservation tillage if producers sign up for program benefits. Because the federal Clean Water Act specifically says "agricultural storm water discharges" are not point sources,

most agricultural activities like tillage and fertilization are not subject to the regulatory provisions of the CWA. However, the federal farm program presents a significant opportunity to achieve changes to agricultural practices through its "voluntary" provisions as most farmers have found participation to be an economic necessity.

Federal Insecticide, Fungicide and Rodenticide Act

Pesticides applied to land for varying purposes such as controlling weeds, insects or fungi can end up in underground aquifers and surface waters. Pesticides that are fairly soluble in water are of particular concern, especially if the parent compound or its breakdown products are persistent (i.e., don't easily degrade further) and are toxic to aquatic life or pose a health threat to animals and people that drink the water.

Federal regulation of pesticides goes back to 1910 but the Federal Insecticide, Fungicide and Rodenticide Act of 1947 (FIFRA) formed the basis of the present-day regulation of pesticides by the federal government. The 1947 Act required the U.S. Department of Agriculture to register all pesticides before they could be sold in interstate commerce. Amendments in 1964 allowed the federal government to refuse registration for pesticides or to remove them from the market if they were found to be ineffective or unsafe. Additional amendments in 1970 and 1972 shifted the program to the newly-created EPA and provided more detail. These and more recent amendments signaled a shift from pesticide efficacy toward a greater emphasis on minimizing environmental degradation.

Under FIFRA and its amendments, a pesticide must be registered by the EPA before it can be legally sold, distributed or used unless it is specifically exempted in the legislation. Additionally, the pesticide must be applied in accordance with its label directions; misapplication is considered a violation of FIFRA. As part of the registration process, pesticides are classified as either "general use" or "restricted use" and restricted use pesticides can only be applied by a certified applicator. The registration process must consider a pesticides' potential impact on the environment, including its effect on any threatened or endangered species as required by the Endangered Species Act.

The registration of pesticides is a federal responsibility that cannot be delegated to states but states can assume primacy for certifying pesticide applicators and enforcing those FIFRA requirements.

Resource Conservation and Recovery Act and Superfund

Uncontrolled disposal of solid and hazardous waste can have significant impacts on groundwater as well as surface water quality. Anyone born before the 1960s will likely recall "town dumps" that contained a mix of anything and everything that was dumped in a convenient place like an old, mined-out quarry. Congress first attempted to address the nation's growing problem of waste disposal in 1965 with the passage of the Solid Waste Disposal Act. The Disposal Act was not very effective and in 1976 Congress amended it with passage of the Resource Conservation and Recovery Act (RCRA). RCRA set national goals for protecting human health and the environment from the hazards of indiscriminate waste disposal, reducing the amount of waste generated and ensuring that wastes are managed appropriately.

Administered by the EPA, the RCRA program prohibits open dumping of solid waste as well as:

- Sets criteria for municipal and industrial solid waste disposal sites;
- Establishes a "cradle to grave" system for managing hazardous wastes;
- Regulates underground storage tanks containing hazardous substances and petroleum products; and
- Encourages states to develop comprehensive plans to manage nonhazardous solid waste.

Like the Clean Water Act and the Safe Drinking Water Act, RCRA allows states to assume primacy if they have laws and regulations at least as stringent as required by RCRA and EPA's regulations and guidance implementing the Act.

While RCRA is primarily concerned with ongoing and future waste disposal activities, abandoned and legacy sites are addressed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, better known as Superfund. This Act and its amendments provide the EPA with the authority to seek out and clean up uncontrolled or abandoned hazardous waste sites as well as accidents, spills and other emergency releases of contaminants into the environment.

Clean Air Act

Airborne pollutants are not typically thought of as having a significant effect on water quality but they clearly do have impacts. Acid rain and its impacts on water bodies have been noted as a problem in some areas for many years. The nitrogen delivered by rainfall is, in part, related to the burning of fossil fuels. Mercury emissions from coal-burning power plants are believed to contribute to the methyl mercury levels found in water that bioaccumulate and biomagnify in fish tissue. And the role of carbon dioxide emitted from various sources is an important water issue as changes in precipitation patterns due to climate change could fundamentally alter the water picture across the globe.

The Air Pollution Control Act of 1955 was the first federal involvement in air pollution and the Clean Air Act of 1963 as well as the Air Quality Act of 1967 expanded its role. The Clean Air Act of 1970, however, marked the federal government's first foray into developing a comprehensive, nationwide program to limit emissions from stationary and mobile sources. The provisions of the 1970 Act, which included National Ambient Air Quality Standards, State Implementation Plans, New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants, and the control of motor vehicle emissions form the mainstay of the present federal clean air program. Significant amendments in 1977 and 1990 further expanded the program.

Like the Clean Water Act and the Safe Drinking Water Act, the Clean Air Act allows states to assume primacy for carrying out many parts of the clean air program with the EPA's role being one of oversight.

National Flood Insurance Program

Flood damages are not covered under the terms of most standard home and business insurance policies. Prior to 1968, flood insurance was virtually unavailable and property owners suffering flood damages usually had to absorb the costs, often resulting in financial ruin. Because only the property owners within flood prone areas would purchase policies and actuarial rates depend on flood characteristics that were seldom well-defined, the private market could not provide affordable flood insurance. Floods and the resulting flood damages were considered "Acts of God" that were not covered by most insurance policies.

The National Flood Insurance Act of 1968 initiated the National Flood Insurance Program (NFIP), a program intended to provide affordable federal flood insurance for flood prone properties. It was realized the availability of flood insurance might simply spur more unwise floodplain development so in return for the availability of flood insurance through the NFIP a local unit of government has to agree to regulate development in flood hazard areas.

Significant amendments to the 1968 Acts were made in 1969 and again in 1973, with various other amendments being made since then. Originally carried out by the federal Department of Housing and Urban Development, the NFIP was assigned to the newly-created Federal Emergency Management Agency (FEMA) in 1979. In 2003, FEMA and a number of other separate agencies were consolidated into the Department of Homeland Security with FEMA being an organizational unit within Homeland Security.

Local units of government can join the NFIP if they agree to regulate development in flood prone areas through zoning or other local land use authorities. Flood prone areas were not well defined for most areas of the nation in 1968 so a national program of flood hazard mapping was initiated under the NFIP. Today, many of the flood prone areas throughout the nation have been identified by FEMA-produced flood maps although the quality and detail of the flood hazard maps differ considerably. Additionally, some of the more rural areas do not have NFIP-generated flood maps.

The NFIP does not establish a federal-level program to regulate development in flood hazard areas. Instead, it relies on the financial attractiveness of the availability of flood insurance to entice local governments to participate in the NFIP and to regulate development using their own local land use powers such as zoning. The financial incentive for local governments with flood hazard areas to join the NFIP was strengthened significantly with passage of the 1973 amendments that prohibited federal financial assistance, including loans from federally insured or regulated lending institutions, for flood prone properties if flood insurance was not available. This sanction was loosened somewhat by a later amendment but today most local governments with a significant amount of flood prone property have joined the NFIP and are enforcing the minimum level of floodplain regulations required for participation.

Corps of Engineers civil works program

The Corps of Engineers has the primary responsibility for carrying out the Clean Water Act's Section 404 dredge and fill permit program and this certainly is one of its more visible functions given the regulatory nature of the program and frequent legal challenges that have ended up in the U. S. Supreme Court. However, it's more historic function and one that continues today is the planning, design and operation of federal water resource projects. Many of the existing flood control and navigation projects around the nation were designed and built by the Corps of Engineers. Some of these projects were carried out at the request of local governments under a cost share arrangement and the operation and maintenance of these projects generally are the responsibility of the local unit of government once completed. For instance, most of the flood control levees in Iowa cities were designed and constructed by the Corps but the cities, not the Corps, are responsible for maintaining and operating these projects.

Some water resource projects, especially those with multi-state benefits or impacts, were specifically authorized by Congress and the Corps has the responsibility to operate and maintain these projects. The Saylorville, Red Rock, Coralville and Rathbun reservoirs are all federally-designed and operated multi-purpose reservoirs in Iowa. While the Corps attempts to incorporate local interests and concerns into operating plans for these reservoirs, the federal interest as reflected in the operating plans would generally supersede any local or state interests or conflicts until such time as the operating plan were formally amended. In some cases, Congressional approval may be required to change an operating plan to suit local interests.

In addition to the federally operated multi-purpose reservoirs on interior Iowa streams, the Corps has responsibility for major projects on both the Mississippi and Missouri Rivers. Providing for a nine foot navigation channel is the primary federal interest on the Mississippi River and this requires a series of Corps-operated locks and dams as well as periodic channel dredging. The federal interest on the Missouri is broader and includes navigation, power generation, domestic and industrial water supplies, irrigation and channel stabilization. The Missouri River project includes a series of six large dams and reservoirs upstream of Iowa as well as extensive channel structures such as wing dams.

Watershed protection projects

The "watershed approach" to addressing water resource problems is appropriate and might appear to be a contemporary innovation but its roots go back many years. Aside from the watershed planning done as part of federally funded water resource projects, one of the first efforts by the federal government to promote the watershed approach was contained in the Flood Control Act of 1944. The 1944 Act authorized the U. S. Secretary of Agriculture to install watershed improvement measures to reduce flood, sediment and erosion damages and to further conservation of land and water resources in 11 watersheds. The Little Sioux River Watershed in northwest Iowa was one of these 11 watersheds.

The Watershed Protection and Flood Prevention Act of 1954 authorized the Soil Conservation Service, now the Natural Resources Conservation Service (NRCS), to cooperate with states and local governmental agencies to carry out works of improvement for soil conservation as well as flood prevention and the conservation and proper development and utilization of water and land resources. The NRCS currently implements the 1954 Act (often referred to as the PL-566 program) through watershed-based project development in cooperation with state and local agencies. This program has been used extensively in Iowa with county Soil and Water Conservation Districts serving as the local sponsor. In Iowa, 40 PL-566 watershed projects have been completed, with the local sponsors operating and maintaining the constructed works, 19 are in progress and one is in the planning stage. Federal funding for the PL-566 program has been cut significantly in recent years and the outlook for new projects is uncertain.

Federal data collection and analysis and technical assistance programs.

A number of federal agencies such as the Corps, the U.S. Geological Survey and the National Oceanic and Atmospheric Administration are authorized to collect and analyze water resources data. Some of the data plays a critical role in formulating national policy while other data is intended to assist states and local governments in administering their programs. For instance, the U. S. Geological Survey maintains a system of stream gages throughout the United States that are critical in determining flow characteristics of streams and rivers and calculating pollutant loads. Some of these gages are operated solely by the Geological Survey but many are operated in cooperation with state and local governments under the Geological Survey's cooperative stream gaging program. Similarly, the Corps of Engineers has a number of programs to conduct hydraulic and hydrologic studies on a cost share basis with state and local governments.

Water Resources Planning Act

The 1965 Water Resources Planning Act is no longer functional but merits mentioning as it was an important initiative on the part of the federal government to promote comprehensive water resources planning at federal, regional, and state levels. The Act had three principal components:

- Creation of a Water Resources Council. The Council, composed of cabinet-level officials, was charged with a number of duties including biennial assessments of the adequacy of water supplies, the continual evaluation of the relation of regional or river basin plans to the requirements of larger regions, and evaluating the adequacy of administrative and statutory means for coordinating federal water and related land resources and programs.

- River Basin Commissions. The Act authorized the President to establish river basin and related land resources commissions upon request of the Council or states. Such commissions, which were eligible for federal financial support, were charged with coordinating plans for developing water and related land resources in its basin, preparing comprehensive, coordinated and joint

plans for water development, recommending priorities, and studying water and related land resource problems.

- State Planning Grants. Title III of the Act authorized grants for comprehensive state or interstate water planning activities.

The Water Resources Planning Act did achieve some degree of success. Under the auspices of the Water Resources Council, uniform principles, standards and procedures for developing and evaluating federal water projects were developed and implemented. WRC Bulletin 15, prompted by a request from Iowa, was the first step in establishing a uniform national approach to estimating flood frequencies. A number of river basin commissions, including the Upper Mississippi River Basin Commission and the Missouri River Basin Commission were formed and a number of states, including Iowa, took advantage of Title III grants to prepare comprehensive state water plans. Although the Planning Act remains in federal statute, funding for all three Titles was discontinued in the early 1980s and the Water Resources Council and the River Basin Commissions no longer exist. Some states have formed river basin associations to replace the Commissions but these associations do not operate under the authority of the Planning Act.

V. Iowa's state and local water programs

Iowa's state and local powers and programs that could be and are used to carry out water policy are numerous and involve a number of state agencies, local governments and special purpose districts and organizations. In addition, a number of the state's programs reflect the requirements needed for primacy in federally mandated programs like the Clean Water Act's Section 402 NPDES program, often making it hard to distinguish federal from state and local programs. As a result, there is often considerable confusion as to what powers state agencies, local governments, and the various special purpose districts can exercise.

The first part of this section takes a general look at Iowa's water policies with the emphasis being on regulatory powers that are or can be used to carry out water policy. The second part looks at the various organizational units of government and the water-related functions they perform or could perform.

General water policies and authorities

Water rights and allocation

The principle of private land ownership is well established in the United States. The Iowa Constitution establishes the right to acquire, possess and protect property as an inalienable right and both the Iowa and U.S. Constitutions prohibit the taking of land without just compensation. Although federal, state or local laws, such as a local zoning ordinance, may limit what can be done on or to a piece of property, the owner of a parcel of land generally determines how that property is used, can restrict others from entering or using the property, and can sell the property to others.

It might be argued that water is at least as valuable as land. Yet, the questions of who, if anyone, actually owns what water and who gets to use how much of it are not ones easily answered. Does the owner of a parcel of land own the water lying underneath it in an underground aquifer or have an inherent right by reason of land ownership to use as much as needed? If a stream passes through a property, does the landowner have the right to use as much of the stream water as he or she wants even if it dries up the stream and deprives downstream landowners of any water? And if a person has the right to withdraw and use water, is that right permanent and can it be separated from the land and sold like real property? The answers to these questions vary from state to state as each state has its own unique mix of common and statutory law that defines water rights.

Many states, including Iowa, have answered the water ownership question by declaring water to be public property. Subsection 455B.262(3) of the Iowa Code establishes that "*Water occurring in a basin or watercourse or other body of water of the state, is public water and public wealth of the people of the state*…" "Basin" is defined to include underground aquifers and "watercourse" is defined to include all lakes, rivers, creeks, or other bodies of water except for lakes or ponds without an outlet to which only one landowner is riparian. Diffuse water such as the water from rainfall or snowmelt that is not part of any watercourse or basin and capillary soil water is not considered public property.

Subsection 455B.262(3) continues that this public water is "…*subject to use in accordance with this chapter, and the control and development and use of water for all beneficial purposes is vested in the state, which shall take measures to ensure the conservation and protection of the water resources of the state. These measures shall include the protection of specific surface and groundwater resources as necessary to ensure long-term availability in terms of quantity and quality to preserve the public health and welfare.*"

ut another way, the water in most of Iowa's streams, rivers and lakes as well as its underground aquifers is public property and the right to withdraw and use this public water is subject to the approval of the state and any terms the state imposes on such uses. In granting approval to use this public water the state must consider whether the proposed use is beneficial, the effect it will have on others' rights to use the

water, and what affect the use will have on the long term availability (quantity as well as quality) of Iowa's surface and groundwater resources. [§455B.267] Additionally, the Iowa statute provides that the "established average minimum flow" be preserved in watercourses (i.e., a permittee cannot use all the water in a stream; some flow must be left for fish and wildlife, waste dilution and other purposes).

Iowa's water use policy is implemented through a permit system. In general, withdrawal and use of 25,000 or more gallons of water per day (peak usage, even if only for one day) from a surface or groundwater source requires a permit from the Department of Natural Resources. [§455B.268] Uses of less than 25,000 gallons per day are considered nonregulated uses and do not require a permit but such unregulated uses are still subject to Iowa's beneficial use policy that requires water be used for useful purposes and not be wasted.

Water use permits can only be granted for a maximum of ten years and the permit is an "appurtenance" of the land described in the permit. [§455B.265(3)] As such, the right to withdraw and use water as authorized by a permit is not a right that can be bought and sold separately from the land nor is that right perpetual. [§455B.273] Water users that are subject to permit requirements and that want to continue their use of water are required to reapply for a permit every ten years. This provides the Department the opportunity to periodically reassess water usage across the state and to consider new information before reissuing a permit for withdrawal and use. Although prior beneficial uses are given consideration there is no legal requirement that a permit be reissued or that a reissued permit allow the same amount to be withdrawn and used as the prior permit.

Once acquired, a water permit does not provide complete and absolute authority to withdraw and use the amount of water authorized in the permit. The Department has the power in times of localized, regional, or statewide shortages of water to require water users to implement water conservation measures or to suspend or restrict use based on priority categories as spelled out in Iowa Code Section 455B.266. Non-regulated uses can also be suspended or restricted as well. The use of water for human consumption and sanitation is the highest priority category while uses for recreation, aesthetics and irrigation are relatively low priorities. The Department also has the authority to revoke or modify a permit prior to its expiration date for a number of reasons such as violation of permit conditions or nonuse. [§455B.271]

In addition to permit requirements for the withdrawal and use of 25,000 gallons or more per day, Iowa statute requires permits for the following:

- Storage of water. Impounding more than 18 acre-feet of water behind a dam, for example, would require a water storage permit. Such storage permits can be granted for the life of the structure. The stored water, however, remains public water subject to water withdrawal and use permit requirements.
- Diversion of water. Exactly what constitutes a "diversion" of water is not defined in Iowa Code but inter-basin or interstate transfers of significant amounts of water would likely be considered a diversion and require a permit. A permit is also required for the diversion of "water or any material from the surface directly into an underground watercourse or basin."
- Aquifer storage and recovery of treated water. A fairly recent development is the storage of water in underground aquifers after the water has been treated to meet drinking water standards. The treated water is injected into an underground formation and withdrawn when needed. A permit is required for such storage and retrieval and such water is regarded as property of the permittee; only the permittee has a right to withdraw the stored water. Such permits can be granted for a period of 20 years.

The basics of Iowa's water allocation system, including public ownership and permit requirements, were adopted in 1957 with only relatively minor changes such as the aquifer storage and retrieval provisions being made since then. There have been relatively few legal challenges to Iowa's water permit system and no cases challenging the fundamental tenets of Iowa's water allocation laws have reached the Iowa Supreme Court.

Floodplain management

Iowa's floodplain management program began with the creation of the Iowa Natural Resources Council in 1949. Although the Council was charged with generally broad water planning duties, the impetus for its formation was statewide flooding in 1944 and 1947 and the considerable property damage the flooding caused. The protection of life and property from floods and the prevention of flood damages was, and still is, considered to be of paramount importance to the prosperity of the people of Iowa. [§455B.262(1)]

The Council's floodplain powers in the early years were largely advisory in nature but significant amendments in 1957 and 1965 provided Iowa's regulatory teeth over floodplain development. Reorganization of Iowa's governmental agencies in 1983 and again in 1986 resulted in the elimination of the Council and today the state's floodplain management powers are vested in the Department of Natural Resources and the Environmental Protection Commission.

The Department has broad regulatory powers over floodplain development. In particular, Iowa statute provides that approval of the Department of Natural Resources is required for the construction, use or maintenance of a structure, dam, obstruction, deposit or excavation in or on any floodway or floodplain. [§455B.275(1)] This broad grant of authority could potentially be used to regulate virtually all activities on the floodplain of every stream and river in the state but statute also requires the Environmental Protection Commission to refine this broad regulatory authority by adopting rules specifying the types and thresholds of projects that need a permit. [§455B.275(8)] For instance, only dams over a certain size require a permit.

The categories of projects that typically require a floodplain permit include buildings, channel changes, dams, levees, bridges and culverts, and various projects involving fill and excavations. Specific approval criteria for the various categories of projects are contained in administrative rules and these criteria vary by project type. Houses, for example, must have their lowest floor at least one foot above the 100-year flood elevation and not be located within the floodway. And dams must be able to pass a certain size of flood without overtopping. In addition to the flood damage related approval criteria, a proposed project's impact on the control, development, allocation and utilization of the water resources of the state, which includes a project's potential impact on fish and wildlife habitat, must also be evaluated.

The state's regulatory powers over floodplain development are confined to the floodplain. Exercise of this power does not require a floodplain to be identified by mapping or other means before this power can be exercised but floodplain mapping is a key component of effective floodplain management. The Department and the Environmental Protection Commission have the authority to analyze floods and map floodplains but there is no dedicated program or funding to do so. The Iowa General Assembly in 1983 charged the Department with the development and implementation of a floodplain mapping plan but no funds for mapping were ever appropriated and this statutory requirement expired in 2004. [§455B.262(1)] The Department has almost exclusively depended on the assistance of federal agencies like the Corps of Engineers and the Federal Emergency Management Agency to develop and maintain floodplain mapping. The floodplain in many parts of the state has yet to be mapped with any reasonable level of accuracy.

Floodplain construction that complies with the terms of a Department- approved, locally-adopted floodplain management ordinance does not require a Department permit. [§455B.276] This requires that a local government adopt an ordinance with standards at least as stringent as the Environmental Protection Commission's floodplain development regulations. Additionally, the local ordinance must be based on detailed floodplain information that delineates floodplain boundaries and potential flood heights. In such communities, the Department typically retains permit authority for the more complex projects like bridges, channel changes and dams, which require an evaluation of how the proposed work will affect flood levels. Department approval of any variances to the terms of a local ordinance is also required.

Iowa statute also provides the Department with the authority to construct flood control works, a power that has never been utilized. [§455B.264(1)]

There was a significant amount of litigation that challenged the state's authority to regulate floodplain development in the early years of the program. From 1966 to 1985, ten floodplain cases dealing with a range of issues and actions, including authority over drainage district projects and the removal of an unauthorized trailer court immediately downstream of a dam, reached the Iowa Supreme Court. In general, the Supreme Court in every case upheld the authority of the state to regulate floodplain development.

Drinking water quality

Iowa's public drinking water law primarily reflects the federal Safe Drinking Water Act's state primacy requirements. Iowa statute provides the Department of Natural Resources and the Environmental Protection Commission with the authority to regulate public drinking water systems, such being defined as systems with at least 15 service connections or that regularly serve at least 25 individuals daily for at least 60 days a year. The Commission is required to adopt rules relating to public water supply drinking water standards and the statute further provides such standards must "…assure compliance with federal drinking water standards adopted pursuant to the federal Safe Drinking Water Act." [§§455B.173, 177]

The regulatory mainstay of Iowa's program to insure safe drinking water is the requirement that public water supplies obtain an operation permit from the Department of Natural Resources. [§455B.183] Operation permits contain various operational requirements to insure compliance with public water supply drinking water standards and include maximum contaminant levels, treatment technologies and monitoring and reporting requirements. Operation permits can also include compliance schedules for meeting contaminant levels or treatment techniques not immediately achievable. Operation permits are issued for a maximum of five years at which time they must be renewed.

Public water supplies are also required to obtain a construction permit for the "construction, installation, or modification of ….any public water supply system or part thereof or any extension thereto…" except for distribution system extensions subject to review and approval by county and city public works departments as provided for in statute. [§455B.183] This construction permit requirement also includes water well construction. However, the Department's review of construction plans is advisory (unless specifically required by federal law or regulations) if a licensed professional engineer certifies the plans meet the requirements of state and federal law or regulations.

Other statutory requirements for public drinking water facilities include the following:

- Operator certification. Public water supplies must be operated by personnel certified by the Department of Natural Resources as having the technical knowledge and experience to operate the system properly. Generally, the more complex the treatment technology, the greater the level of operator knowledge and experience. [§455B.223]]
- Assistance program. The Department of Natural Resources is required to provide technical assistance to public water supply systems. [§455B.183B]
- State revolving loan program. The Department of Natural Resources in cooperation with the Iowa Finance Authority is required to establish and carry out a revolving loan program for the purpose of financing public drinking water projects. [§455B.294]

Drinking water systems not meeting the definition of a public water supply system, which generally includes private wells serving five or less residences, are under the joint jurisdiction of the Department of Natural Resources and county Boards of Health. [§455B.172] The Environmental Protection Commission has the responsibility to adopt standards for private drinking water systems and county Boards of Health are required to adopt and enforce standards at least as stringent as those adopted by the Commission. The Commission's adopted standards for private water supply systems primarily relate to well construction and there are no functional equivalents of maximum contaminant levels and treatment technology that apply to private water supply systems nor are the owners of private water supply systems

required to monitor the water delivered to the tap. In other words, there is no assurance that the water from private water systems is, in fact, safe to drink. Funds are, however, made available to counties to defray the cost of testing the water from private water systems. Additionally, a well construction permit from the Department is required for wells serving private water systems although the Department has delegated this permitting authority to most counties by means of an Iowa Code Chapter 28E agreement.

Other regulatory functions relating to both private and public water supply include the requirement that water wells be drilled by a certified contractor and pumps be installed by a certified pump installer, both certifications to be provided by the Department. [§455B.190A]

Groundwater quality and protection

Groundwater quality is determined by a number of factors. The geochemical properties of the water-bearing strata have a significant effect and often limit the usability of groundwater for various purposes. For instance, the water from some of Iowa's aquifers are high in dissolved solids, radium, arsenic, or other contaminants. These are naturally-occurring contaminants and the water from some aquifers may either not be fit for drinking or other uses or may require extensive treatment before they are.

Groundwater quality can also be degraded by a variety of anthropogenic activities and it's these activities that are of regulatory interest. The water in relatively shallow aquifers is especially vulnerable to contamination. Fertilizer and pesticides applied to the overlying land, leaking underground storage tanks, landfills and hazardous waste disposal sites, and waste storage lagoons are just some of the land-based activities that have the potential to degrade and contaminate groundwater resources. Improperly constructed water wells and injection wells can also serve as a direct conduit of groundwater contamination.

Given the multiple potential sources of groundwater contamination, Iowa's laws that deal with groundwater protection are spread across programs and agencies and involve a mix of regulatory and voluntary approaches. Some programs are aimed specifically at groundwater protection while others have groundwater protection as a secondary objective.

Iowa's first recognition of the potential for anthropogenic groundwater contamination came with the passage of Iowa's water rights law in 1957. Iowa statute requires a permit for the diversion of "…water or any material from the surface directly into an underground watercourse or basin." [§455B.268] A permit cannot be issued if such a diversion would impair the long-term quality of groundwater or otherwise adversely affect the public health or welfare. [§455B.267] Additionally, Iowa's water quality law prohibits the discharge of any pollutant to a water of the state unless authorized by a permit from the Department of Natural Resources. [§455B.186] "Water of the state" is defined broadly to include groundwater. [§455B.171]

Iowa's 1987 Groundwater Protection Act established the bulk of Iowa's present-day groundwater protection program. Based partially on the recommendations contained in a groundwater protection strategy as mandated by the Iowa General Assembly and adopted by the Environmental Protection Commission, the Act put into place a number of regulatory provisions, financial incentives, and educational programs to protect Iowa's groundwater resources.

Iowa's groundwater protection policy, codified in Iowa Code Chapter 455E, establishes a goal of non-degradation — preventing contamination of groundwater to the maximum extent possible. [§455E.4] Additionally it establishes a goal of restoring to a potable state contaminated groundwater and requires the Environmental Protection Commission to adopt rules to determine the cleanup actions needed to meet this goal. [§455E.5] However, any actions that comply with Chapters 455 and 459 are exempt from liability under Chapter 455E. Agricultural producers are expressly exempted from liability resulting from nitrate or pesticide contamination if fertilizers and pesticides are applied in accordance with soil test results and applicable pesticide regulations. [§455E.6]

Although the Department of Natural Resources has the primary responsibility of coordinating and administering Iowa's groundwater protection programs, the law recognizes that everyone has a duty to prevent groundwater contamination and all state and local agencies are required to consider groundwater protection policies in carrying out their various programs. Political subdivisions are also authorized to implement groundwater protection policies within their local jurisdictions if such are "…at least as stringent but consistent with the rules of the department." [§455E.10]

The Department is also charged with a number of responsibilities including the development of a comprehensive groundwater monitoring network, groundwater hazard mapping, maintaining a natural resource geological information system, dissemination of groundwater information and development of a water quality educational program for schools. [§455E.8] Other entities such as the Department of Agriculture and Land Stewardship also have enumerated groundwater protection responsibilities.

The Environmental Protection Commission has the authority to adopt health-based groundwater protection standards. [§455E.9] However, the Commission has not to date adopted such standards and in a 1989 report to the General Assembly indicated adoption of such could be counter to the groundwater protection policy of non-degradation.

A groundwater protection fund is also established under Chapter 455E. Funded by a combination of fees and taxes imposed on such things as solid waste, fertilizer and underground storage tanks, the fund consists of four accounts: solid waste, agricultural management, household hazardous waste, and storage tanks. The fund is used for a variety of groundwater protection activities of a number of agencies as spelled out in Section 455E.11. For instance, the Department of Agriculture and Land Stewardship, the Department of Public Health, the Leopold Center, the state hygienic laboratory and the Center for Health Effects of Environmental Contamination all receive funds from the agricultural management account that is funded in part with a tax on nitrogen fertilizer sales.

The Groundwater Protection Act implemented a number of new groundwater protection programs, strengthened others and created new funds and entities to deal with various aspects of groundwater protection. Current regulatory provisions that relate in some manner to groundwater protection include pesticide application regulations, the requirement to properly close abandoned wells and obtain a permit for new wells, solid waste and landfill regulations, household hazardous waste labeling and disposal requirements, underground storage tank requirements, manure storage and application regulations and groundwater contamination cleanup requirements.

At this time, Iowa does not have primacy for the Underground Injection Control Program that was created by the federal Safe Drinking Water Act. Therefore, there is a dual federal — state authority situation with injection wells potentially subject to both federal (EPA) and state permit requirements.

Surface water quality and protection

The Department of Natural Resources is the primary agency to prevent, abate, or control water pollution [§455B.172(1)] but its primary regulatory authority over pollution derives from the requirement that a permit be obtained for the:

- Construction, installation or modification of a disposal system;
- Construction or use of any new point source for the discharge of any pollutant into a water of the state; and
- Operation of any waste disposal system [§455B.183(1)].

"Disposal system" is defined to include sewer systems, treatment works, point sources, and systems designed for the usage or disposal of sewage sludge; "pollutant" is defined as sewage, industrial waste or other waste and the definition of "point source" is identical to that found in the federal Clean Water Act

with the exception that agricultural stormwater discharges and return flows from irrigation are not specifically exempted as a point source. [§455B.171]

The "operation" and "use" terms provide the legal authority to regulate point source discharges and to issue permits authorizing discharges to state waters. This a necessary power for state primacy in the Clean Water Act's Section 402 NPDES program and the General Assembly specifically recognized the desire to carry out the Section 402 program in providing the Department of Natural Resources with these regulatory powers. [§455B.177]

The construction permit requirement is largely a carryover from pre-CWA days when Iowa's primary authority over pollutant discharges related to the state's review of wastewater treatment facilities to insure such would use appropriate treatment technology. Construction approval is not a necessary requirement for CWA NPDES primacy but it does serve a function to insure that the constructed works will be able to meet its operation permit requirements. The construction permit requirement also extends regulatory authority to non-discharging wastewater treatment facilities such as septic systems with soil absorption fields.

The Environmental Protection Commission is charged with establishing effluent standards as well as rules for the location, construction, operation and maintenance of disposal systems. [§455B.173] "Effluent standards" are defined to include any restrictions or prohibition on quantities, rates, and concentrations of chemical, physical, biological, radiological or other constituents discharged from a point source to a water of the state. [§455B.171]

Regulatory authority over non-discharging, private sewage disposal facilities is primarily the responsibility of county boards of health, which are authorized to adopt standards for such systems that are at least as stringent as those promulgated by the Commission. However, the Department of Natural Resources retains concurrent authority if a county fails to carry out its duties. [§455B.172] "Private sewage disposal systems" are systems that treat domestic sewage from four or less dwellings or the equivalent of less than sixteen people on a continuing basis. [§455B.171]

Additional regulatory authority over waste treatment systems includes the requirement that wastewater treatment plants be operated by personnel certified by the Department as having the necessary experience and training to operate the plant. [§455B.223] The Department is also charged with adopting rules for the commercial cleaning of private sewage facilities and toilet units and the licensing of those who commercially clean such and dispose of the waste. [§455B.172]

In addition to the point source regulatory authority found in Iowa Code Section 455B.183, Section 455B.186 provides what arguably could be considered general authority over all sources of pollutants including nonpoint sources. This section prohibits the "dumping, depositing or discharging" a pollutant into any water of the state unless authorized by a permit. "Water of the state" is defined very broadly to include essentially all surface water bodies. "Pollutant" is defined as sewage, industrial waste or other waste but the terms "dumping, depositing or discharging" are not further defined. [§455B.171] The federal Clean Water Act also prohibits the discharge of a pollutant unless authorized by a permit but also defines the term "discharge of a pollutant' such that it only means a discharge from a point source. This is a significant difference between federal law and state law as Iowa Code Section 455B.186 does not explicitly limit the prohibition therein to point sources. Whether or not the language of Section 455B.186 could be construed to require the Department of Natural Resources to require permits for nonpoint sources of pollutants is uncertain but its regulatory reach appears to turn on the meaning of "waste". "Waste" is not specifically defined but the terms "industrial waste" and "other waste" are defined and encompass a broad variety of substances including industrial process wastes as well as "…heat, garbage, municipal refuse, lime, sand, ashes, offal, oil, tar, chemicals, and all other wastes..." The Department has often pointed to this section as authority for enforcement actions unrelated to discharges that require a permit under Section 455B.183.

The Environmental Protection Commission is charged with establishing water quality standards. [§455B.173(2)] Until the 2006 legislative session, the statutory criteria relating to the establishment of water quality standards was limited to the general provisions contained in Iowa Code Section 455B.176 but more specific and detailed criteria for establishing and modifying water quality standards were added in 2006 under Iowa Code Section 455B.176A. These newer provisions largely parrot the EPA's rules regarding establishing and modifying state water quality standards. Since the federal Clean Water Act requires that a state's water quality standards be approved by the Environmental Protection Agency before they are considered effective state standards under the Act, the EPA's oversight function provides a strong federal voice in shaping Iowa's state water quality standards even if state statute does not explicitly require the standards to meet the EPA's expectations for such. There is little to be gained by adopting state water quality standards that do not closely comport with the EPA's rules and guidance as the EPA has a statutory duty to disapprove non-compliant state standards.

Water quality standards essentially define a state's water quality goals and are comprised of a water body's existing or potential beneficial uses and the narrative and numeric criteria to insure those uses are protected or restored. As such, water quality standards might be considered the centerpiece of a state's water quality program. The authorization to establish water quality standards, however, provides no explicit regulatory authority above and beyond the Department's authority to regulate discharges of pollutants as provided for in Iowa Code Sections 455B.183 and 455B.186. Water quality standards do provide the scientific rationale and legal authority to impose effluent limits more stringent than required by technology-based effluent limits for point sources but beyond that Iowa statute does not explicitly tie the standards to any regulatory functions. The Department of Natural Resources does compile lists of water bodies not meeting water quality standards (the so-called impaired waters list) and calculates total maximum daily loads (TMDL) for these water bodies as called for in Section 303(d) of the federal Clean Water Act but these activities are not explicitly required by Iowa statute. It could be argued, however, that any discharge of waste resulting in a violation of state water quality standards is actionable even if such a discharge did not require a permit under Section 455B.183 (point sources).

Urban stormwater runoff

Urbanized areas can create both water quantity and quality problems. As areas are paved and storm sewers installed, the amount of runoff increases. The runoff water can also pick up urban pollutants like oils, metals, deicers, etc. As a result, the hydrology of streams and rivers with a significant amount of their watershed in urban uses can change significantly and water quality can suffer.

Iowa statute does not explicitly address the quantity aspect of urban stormwater runoff or the control thereof. A number of Iowa cities as well as some counties have adopted stormwater management ordinances that seek to limit post-development rates of runoff to pre-development conditions although the individual approaches vary considerably. There is no statutory requirement to do so, however. A landowner who feels that urban development has increased the volume or rate of flow in a stream to his or her detriment would have to have to address the matter through Iowa's individual drainage laws.

The water quality aspect of urban stormwater runoff is being addressed to some degree through the requirement to obtain a permit for the construction or use of a point source. [§455B.183] The federal Clean Water Act and the EPA's implementing regulations consider discharges from urbanized areas and industrial and construction sites to be point sources. As Iowa's definition of point sources is essentially the same as contained in the Clean Water Act, the assumption is that Iowa's requirement to obtain a permit for the operation of waste disposal systems includes the requirement to obtain a permit for stormwater discharges from urban areas and industrial and construction sites. In 2006, the Iowa General Assembly further clarified that the Department may issue permits "…*related to the administration of the national pollutant discharge elimination system (NPDES) permit program pursuant to the federal Water Pollution Control Act, …including but not limited to storm water discharge permits issued pursuant to Section 455B.103A*." [455B.197]

Iowa has primacy for the Section 402 NPDES program and the Environmental Protection Commission has adopted stormwater discharge rules that closely parallel the EPA's rules. Under these rules, permits are required for construction sites of one acre or larger, industrial sites and municipal separate storm sewer systems of the more urbanized areas (the so-called MS4s). In general, the permits require the permit holder to prepare and maintain a pollution prevention plan specifying how they will limit pollutant discharges, including sediment runoff from construction sites. While the primary focus of the stormwater program is on water quality, many of the best management practices for improving water quality such as retention basins and infiltration areas also have secondary water quantity benefits.

Drainage

A state's water rights policies and laws typically evolve from situations where the demand for water exceeds the available supply. Drainage law on the other hand evolves from situations where there is too much water and water is the "common enemy"; something to be disposed of as quickly and efficiently as possible. Iowa law establishes a presumption of public benefits from the drainage of surface waters from agricultural and other lands or their protection from the overflow of water. [§468.2)

Iowa's statutory drainage law is codified in Iowa Code Chapter 468 and consists of five subchapters and approximately 650 individual sections. Only one of the five subchapters deals with individual drainage rights; the four other subchapters primarily deal with drainage and levee districts.

Iowa's drainage law concerning the rights and liabilities of individual property owners to drain their land of excess water evolved from numerous court cases beginning with the settlement of Iowa in the last half of the 19th century. The various decisions handed down by the judges in these drainage disputes over the years, referred to as common law, largely define individual drainage rights in Iowa today. Iowa's statutory law dealing with individual drainage rights is primarily limited to one short section of the Iowa Code, Section 468.621, and the wording of this section is such that it provides relatively little clarity to a person unfamiliar with drainage principles and common law.

Iowa's drainage law is founded on the principle that there is a natural, unwritten easement such that landowners must provide for the passage of surface water in natural watercourses. A landowner that interferes with the natural course of drainage or substantially increases the water flow to the extent it creates damages on others' properties is liable for any such damages. Much of the case law is written in terms of a dominant estate and a servient estate. Drainage water naturally flows from the higher ground, the dominant estate, onto lower-lying ground, the servient estate. The owner of the servient estate must provide for the flowage of water across their land in a natural watercourse and cannot obstruct such flowage to the detriment of other adjoining properties. The owner of a dam constructed across a stream, for instance, would be liable for damages to an upstream property, the dominant estate, if the dam backed water onto or otherwise interfered with drainage on those upstream lands. On the other hand, the owner of the dominant estate cannot unreasonably increase the quantity of water flowing across the servient estate and would be liable for any damages caused by such increased flowage.

There is no administrative agency at the state or local level that is responsible for enforcing individual drainage rights. If a landowner believes he or she has suffered or will likely suffer damages due the actions of others and cannot reach an informal agreement, the legal remedy is to ask the courts to award damages or provide injunctive relief. Subchapter V does provide a legal means of establishing drains across the properties of others that involve the county board of supervisors and addresses drains constructed with the mutual consent of two or more landowners but most individual drainage rights conflicts are settled by the courts. Some drainage disputes may involve streams or rivers that are regulated in some way by Iowa's floodplain management laws or come under the jurisdiction of the Clean Water Act's Section 404 permit requirements but these regulatory provisions seldom are adequate to fully address the drainage issues in dispute.

It was realized in the early days of Iowa's settlement that to make some land suitable for crop production it would have to be drained but the existing, natural drainage courses were not adequate to provide the capacity and relief needed to effectively drain the land. Individual efforts to drain the land would have been futile because of a lack of common, adequate outlets for drainage improvements like tile drains. A more coordinated, public effort was needed if the land was to be drained and brought into production. The formation of drainage districts was authorized by the Iowa General Assembly in the early part of the 20th century to promote the drainage of naturally-wet lands, primarily in the relatively flat north-central part of Iowa. The importance of drainage in Iowa is underscored by the fact that Section 18 of Article I of the Iowa Constitution, a section that deals with eminent domain in general (just compensation required where private lands are taken for public purposes) provides that the General Assembly may pass laws permitting the owners of lands to construct drains, ditches and levees across the lands of others; vesting the "proper authorities" with the power to construct and maintain levees, drains and ditches; and providing for special assessments on the benefited lands to pay for the construction and maintenance of such works. The major portion of Iowa Code Chapter 468 deals with the formation and administration of drainage and levee districts, the "proper authority" created by the Iowa General Assembly to promote the drainage of lands and their protection from overflow for agricultural production.

A county board of supervisors has the authority to form a drainage or levee district. [§468.1] Two or more landowners can petition to form a district with the petition setting forth the area to be included and other facts. [§468.6] The filing of a petition kicks off a series of events beginning with the appointment of an engineer to survey the lands in the proposed district and prepare a report showing proposed improvements as well as their probable costs. [§§468.11, 12] If the board of supervisors finds the report acceptable, they can establish the district after meeting various procedural requirements. [§468.22] Once established, drainage and levee districts have the authority and power to construct the improvements, such as the excavation of drainage ditches or the deepening and widening of an existing stream, in accordance with the drainage engineer's approved plans.

Although Iowa law assumes the drainage of private lands or their protection from overflows to be a public benefit, the improvements constructed under the authority of a legally organized drainage or levee district are not publicly funded. The costs of the improvements are paid by the landowners in the district with their share of the costs being proportional to the benefits received. To determine the proportion of a landowner's costs, the county board of supervisors appoints a three-member classification commission, one of whom must be an engineer. [§468.38] The statute does not prescribe the methodology to be used in assessing benefits nor the factors to be considered; that is left up to the engineer and classification commission. Landowners in the district do have the opportunity to object to their assessment. [§468.45 et seq] The classification commission's report setting forth the relative benefits for each parcel of land in the district, once adopted by the board of supervisors, is used to apportion the costs of improvements and maintenance among the various landowners in the district.

Chapter 468 also contains provisions for inter-county districts, subdistricts, annexation of additional lands into a district, bond financing, the formation of county boards of drainage administrators and various other procedural and organizational requirements. The control and management of a district may be placed under the control of a three member board of trustees elected by the landowners in the district once the original improvements are completed. [§468.500]

Most of Iowa's drainage and levee districts were formed in the first half of the 20th century and relatively few new districts have been formed since then although some districts have annexed additional lands into the districts, as provided for in Chapter 468. Many of the districts are governed by the county board of supervisors although some have elected an independent board of trustees.

The "drainage as a public benefit" principle of Iowa drainage law presents a potential conflict with both state and federal laws that seek to preserve the natural resource benefits of wetlands and natural streams. Drainage districts by law are obligated to maintain and improve drainage while other laws seek to discourage drainage to preserve natural benefits. The Iowa Supreme Court addressed this apparent conflict in 1985. That case, Polk County DD 4 v. INRC, involved the improvements to an old Skunk River

channel which served as the outlet to Drainage District 4. The improvements were of a nature that required the approval of the Iowa Natural Resources Council pursuant to Iowa's floodplain management laws and the Council's implementing regulations but the District failed to obtain the necessary permit prior to commencing the improvements. The District filed an application for after-the-fact approval but the Council denied the application on the grounds that the work did not meet the relevant approval criteria and would have an adverse impact on fish and wildlife habitat. The District petitioned for judicial review, arguing the Council did not have the legal authority to prevent the District from making the necessary improvements and that the decision was not supported by substantial evidence. The district court and the Iowa Supreme Court upon appeal both affirmed the Council's decision. The Supreme Court opined that when two statutes deal with same subject, both should be liberally construed to further the objective of the legislature and that the legislature had clearly intended to give the Council authority over drainage districts.

Drainage districts are also subject to federal laws including Section 404 of the Clean Water Act and the Endangered Species Act due to the supremacy clause of the U.S. Constitution. In addition, individual landowners within a district are subject to the various requirements associated with the federal farm program, including the so-called swamp buster restrictions, if they are participating in the program.

Land use controls

Most of the water in Iowa's streams, rivers, lakes, wetlands and aquifers starts as precipitation that touches the land before entering a water body or aquifer. Some water runs directly off the land surface into waterways while some infiltrates the soil and either replenishes an underlying aquifer or enters waterways though a more circuitous route like groundwater recharge or tile drainage. Both pathways provide a means of carrying sediment, fertilizers, pesticides and other substances into Iowa's waters. How land is used and managed is clearly linked to water quality as well as quantity.

There are a number of regulatory programs at the state and federal levels that affect land use and management in some way. Section 404 of the Clean Water Act, for example, may prohibit the draining of a wetland or Iowa's floodplain management laws may prevent the development of residential housing in the floodway of a river. But aside from such "special purpose" programs, the general authority to control land use in Iowa is largely vested in its local governments — cities and counties and their governing bodies.

Zoning is the most fundamental and potentially powerful authority local governments have to control land use. Both cities and counties have the authority to enact zoning regulations but are not required to do so. [§ 335.3, §414.1] The basic principle of zoning is that the area within a city or county's jurisdiction is divided into zoning districts with the allowed uses and standards varying from district to district. The more traditional use of zoning is to establish zones for general economic and public health purposes, such as keeping industrial facilities out of residential neighborhoods and to regulate building size, height, etc., but zoning can also be used to regulate lands for other purposes as well. A number of cities and counties have, for example, established floodplain management zones along rivers and streams to minimize flood damages by regulating development within these zones.

Iowa statute contains various substantive and procedural requirements that must be met if a local government chooses to enact zoning regulations. The most important substantive requirement is that the zoning districts and associated standards must be based on a comprehensive plan. The zoning statutes contain a laundry list of items the comprehensive plan must or can consider and include water-related items such as securing safety from floods but all items relate to promoting the public health and welfare, a fundamental requirement of all regulations. [§335.5, §414.3] Procedural requirements include public hearings to establish and modify districts, the appointment of a zoning commission to provide recommendations to the county board of supervisors or city council, and a board of adjustment to hear and decide requests for special exceptions or variances to the zoning regulations.

A significant limitation of county zoning powers is that county zoning cannot be used to regulate lands used for agriculture or the related agricultural structures and buildings; the only exceptions being for regulating floodplain construction or preserving agricultural land. [§335.2] This limitation has been especially relevant in the argument that counties should be able to regulate confined animal feeding operations. In general, the courts have ruled that such feeding operations are agricultural uses within the intent of the county zoning limitation and counties cannot use their zoning powers to regulate them.

In addition to zoning powers, both counties and cities have subdivision review authority. [§354.8] A tract of land being subdivided into three or more tracts of land must be submitted to the county board of supervisors or city council for review and approval. Counties and cities are authorized to adopt subdivision regulations that apply "reasonable standards and conditions" and must consider whether a planned subdivision conforms to its comprehensive plan and its potential burden on public improvements. Cities can also establish subdivision review powers for subdivisions within two mile of its borders. [§354.9] Although subdivision review is a limited land use power, it can be used to insure new development will not significantly conflict with overall land use and development policies and adequate provisions for wastewater treatment and drinking water will be available.

Counties and cities also have home rule authority as authorized in Sections 38A and 39A of Article III of the Iowa Constitution. The wording of each of these sections is similar, granting "…*home rule power and authority not inconsistent with the laws of the general assembly, to determine their local affairs and government, except that they shall not have the power to tax unless expressly authorized by the general assembly*." At first look, home rule authority appears to give local governments to the power to do just about anything they determine to be in their local interest with the exception of levying taxes. However, a significant limitation on home rule powers comes with the phrase "not inconsistent with the laws of the general assembly". Iowa statute clarifies that home rule power is not inconsistent with a state law unless it is "irreconcilable with" state law and a county or city may exercise its general powers subject only to "limitations expressly imposed" by a state law. [§364.2, §331.301] Further, statue provides that counties and cities may set standards higher or more stringent than state law unless state law provides otherwise, which would imply that just because the General Assembly has passed laws dealing with a particular subject it does not necessarily preclude local government from implementing more stringent standards. [§364.3, §331.301] The reality is, however, that county and city home rule powers have proven to be of limited use in regulating land use.

In determining whether home rule powers could be used to control land use in some manner, the fundamental question a local government must ask is whether the Iowa General Assembly has already passed laws dealing with the same subject and whether any local controls would be "inconsistent with" those laws. The courts have not elucidated a bright line test as to how far home rule ordinances and requirements can stray from state-mandated requirements before becoming "inconsistent with" state law but they typically will look at whether the General Assembly has either specifically preempted local control or expressed clear intent to have uniform standards statewide. It is clear, however, that any local land use controls establishing districts with differing standards would be considered zoning and would have to meet the procedural and substantive requirements and limitations of the zoning statues. And, of course, counties are specifically prohibited from regulating agricultural uses through zoning.

Counties are required to prepare a land use plan and periodically review and update the plan. [§352.1] Iowa Code Chapter 352 provides for the appointment of a county land preservation and use commission and charges it with inventorying existing land uses and preparing a plan that considers various factors including methods of preserving agricultural lands and preserving and providing for recreational areas, forests, wetlands, streams, lakes and aquifers. Upon acceptance by the county board of supervisors, the plan is to be the land use policy of the county and is to be "administered and enforced" by the county in its unincorporated areas. [§352.5] However, it is not clear as to what, if any, power Chapter 352 confers on counties to administer and enforce the plan beyond powers already delegated to counties like zoning.

Wetlands protection

The drainage and destruction of wetlands has been linked to a variety of water ills such as increased flood flows and poorer water quality. There is a national policy to curb the loss of wetlands through the Section 404 dredge and fill permit program and the federal farm bills' swamp buster regulations. The voluntary restoration or creation of wetlands is also encouraged through various cost share programs like the wetlands reserve program authorized by the federal farm bills.

Iowa agencies participate in a number of voluntary, cost share assistance programs to restore and develop wetlands but wetlands protection in Iowa is largely dependent on federal efforts: the Section 404 permit program and swamp buster provisions. Iowa statute prohibits the draining of "protected wetlands" without first obtaining a permit from the Department of Natural Resources. [§456B.12] However, such protected wetlands are limited to certain types of wetlands over two acres in size and the legislation specifically excludes wetlands lying within a levee or drainage district. The Department must also prepare an inventory and provide specific identification of such protected wetlands before the regulatory provisions are effective. To date, the Department has not implemented the protected wetland program authorized by Chapter 456B.

Navigation rights

Lakes have always attracted people for swimming, boating and fishing but streams and rivers are receiving increased attention for similar recreational activities. Iowa has nearly 80,000 miles of perennial and intermittent streams that potentially could be used for recreational navigation at least part of the year in some years but the bed and banks of all but about 1000 miles of the larger rivers are privately owned. Similarly, the beds and surrounding land of a number of Iowa's lakes are privately owned. Water quality standards have been adopted to protect recreational uses on streams and rivers and there are programs to encourage recreational navigation on streams and rivers. The question is whether the public has a right to use streams and rivers for recreational navigation when the bed, banks and adjacent land are privately owned, especially in view of Iowa's law defining trespass to include entering a property to hunt, fish or trap without the express permission from the owner. [§716.7]

At one time, the Iowa courts considered the public right of navigation to extend only to those river segments where the bed and banks were owned by the State of Iowa. Legislation passed in 1961 and 1982, however, substantially expanded navigation rights. The public's right to use water bodies where the bed and banks are in private ownership is addressed in Iowa Code Section 462A.69 which provides, in part, that:

> *"Water occurring in any river, stream, or creek having definite banks and bed with visible evidence of the flow of water is flowing surface water and is declared to be public waters of the state of Iowa and subject to use by the public for navigation purposes in accordance with law. Land underlying flowing surface water is held subject to a trust for the public use of the water flowing over it."*

Additionally, *"*navigable waters*"* are defined to include all lakes, rivers, and streams, which can support a vessel capable of carrying one or more persons during a total of six months period in one out of every ten years. [§462A.2]

Taken together, these sections clarify the public's right to use streams and rivers flowing through private property for navigation if there is enough flow to float a small boat at least half the year in at least one out of ten years. There has been no Iowa case law directly addressing these navigation provisions but in 1996 the Iowa Attorney General opined the public may float on any stream that is navigable as defined in Iowa Code and engage in activities incident to navigation including fishing, swimming and wading. [Opinion #96-2-3]

The definition of navigable waters is technical in nature and would require the application of streamflow statistics, hydraulics and channel geometry to determine if there is a public navigation right for a particular stream at a particular location. To date, no attempt has been made to list or otherwise identify all streams that would meet the definition of navigable water. The right to navigate a water body does not include the right to trespass on private land to gain access to the water body. A small farm "lake", for instance, would likely meet the technical definition of a navigable water body but as a practical matter that right would be useless as the public would have no right to gain access to the lake across private property. The right to navigate does not carry with it the right to trespass on privately owned land adjacent to a stream for such purposes as camping.

Fertilizer and pesticides

Over 90 percent of Iowa's land is used for some type of agriculture and about two-thirds is in intensive row crop production so the over-application or misuse of fertilizers and pesticides for agricultural production can have a significant effect on water quality. The Iowa Secretary of Agriculture and the Iowa Department of Agriculture and Land Stewardship (IDALS) are charged with regulatory functions over fertilizers and pesticides but only have the power to limit or restrict the application of pesticides, not fertilizer.

Iowa's pesticide controls center on the IDALS' power to stipulate through rules the "…proper use of pesticides including but not limited to their formulations, times and methods of application, and other conditions of use." [§206.19] Licenses are also required for pesticide dealers, commercial applicators and anyone that applies a "restricted use" pesticide. Pesticides used in Iowa must be registered with IDALS and the Secretary has the power to determine which pesticides are restricted use pesticides.

Iowa's pesticide laws provide the state authority for IDALS to assume primacy for the Federal Insecticide Fungicide, Rodenticide Act. Iowa's restricted use pesticides are essentially one and the same as those so identified by the EPA and IDALS' rules determining "proper use" are tied to a pesticide's label instructions that prescribe application rates and various other cautions and restrictions on its use.

Although pesticide use restrictions are largely the responsibility of IDALS and the Secretary of Agriculture, the Environmental Protection Commission can ask the Secretary to propose rules implementing use restrictions or other actions if the Commission finds that an agricultural chemical causes an unreasonable, adverse effect on humans or the environment. [§455B.491] "Agricultural chemical" as defined includes pesticides as well as any feed or soil additive which is designed for and used to promote the growth of plants or animals. Any resulting use restrictions would then be promulgated under the authority of Iowa Code Chapter 206. As Chapter 206 deals only with pesticides, the Commission's powers under Section 455B.491 appear to be limited to pesticides.

Iowa Code Chapter 200 charges the Secretary of Agriculture with the registration of fertilizer and soil conditioner products, licensing of dealers for such, product labeling and development of rules for handling and storage but it does not provide the Secretary with the authority to limit application rates or application methods, as is the case for pesticides. Chapter 200A provides the Secretary with similar responsibilities and authority over bulk dry animal manure.

Local governments are expressly prohibited from regulating the sale, use, etc. of fertilizers and pesticides. [§200.22, §206.34]

Soil erosion

Soil erosion is a significant problem on steeper sloping land that is tilled for row crop agriculture. Not only does soil erosion decrease the tilth and productivity of the soil, the eroded soil particles are often carried

into streams, rivers and lakes where they cause a variety of problems including poor water clarity. Sediment is one of the primary water quality problems in Iowa and control of upland erosion can be an important water quality improvement strategy.

The commissioners of county Soil and Water Conservation Districts are charged with establishing by regulations "reasonable and attainable" soil loss limits for land within their jurisdiction and providing for their implementation. [§161A.44] All property owners in Iowa have the responsibility to establish and maintain soil and water conservation practices or erosion control practices as required by the regulations of their respective county commissions. [§161A.43] Enforcement of such regulations is primarily dependent upon the receipt of a complaint from a landowner alleging sediment-related damages due to the actions of adjoining property owners. If upon investigation the commission finds sediment damages due to soil loss in excess of the applicable soil loss limit, they can order certain actions be taken to remedy the soil loss. [§161A.47] There are, however, some limitations on the actions that can be required. Agricultural land owners, for instance, cannot be ordered to establish permanent or temporary soil and water conservation practices unless cost-share or other public moneys have been specifically approved for that land and made available. [§161A.48]

County commissions also have the authority to inspect properties for compliance with soil loss limits on their own initiative if they have reason to believe soil erosion in excess of the applicable limits is occurring. Even if any observed erosion is not damaging other properties, the commission can petition the district court for an order to implement soil conservation measures if soil loss is occurring at twice the allowable limit or more and the owner fails to take appropriate action. [§151A.161] State agencies with public land under their control that is cultivated for agricultural or horticultural purposes must enter into an agreement with the county soil and water conservation district stipulating the practices that will be used to limit soil loss to the applicable soil loss limit. §161A.54]

In addition to land used for agriculture, construction sites can present a significant soil erosion problem until such time as the land is fully developed and the land stabilized with permanent vegetation or other measures. Although Iowa statute does not specifically address permits for construction sites, it does require a written permit for the "…construction or use of any new point source for the discharge of any pollutant into any water of the state."[§455B.183] Additionally, Sections 455B.103A and 455B.197 clarify that the Department of Natural Resources may issue permits for stormwater discharges to be compliant with the provisions of the federal Clean Water Act. A combination of federal statutory law (CWA Subsection 402(p)) and federal court decisions have established that stormwater discharges from various municipal and industrial sites are point sources subject to Section 402 of the Clean Water Act (NPDES program) and that such point sources include construction sites of one acre or more. Iowa has primacy for the Section 402 program and a Department permit is required for any construction site of one acre or more. A pollution prevention plan showing how erosion will be controlled must be developed as a condition of the permit. Most permits are handled under general permit provisions as authorized by Iowa Code Section 455B.103A.

Animal feeding operations

Diversified animal feeding operations were at one time part of almost every farm operation, with much of the feed being grown by the farm owner. Animals often spent at least part of their time in open fields. Over the past four decades animal production began to shift to fewer, larger and more specialized operations with the animals often being confined to a building or open enclosure all the time. Whether or not a given number of animals raised in more dispersed locations such as pastures and small feedlots have any or more or less effect on water quality and quantity as the same number in fewer, more concentrated operations is open to debate but it is clear the Iowa General Assembly believes it to be in the public interest to regulate the larger animal feeding operations. Additionally, the federal Clean Water Act considers "concentrated animal feeding operations" to be point sources subject to Section 402 (NPDES permits) of the Clean Water Act and states having NPDES primacy must have laws and rules that conform to the EPA's implementing regulations. Among other things, the EPA's rules establish how

large an operation must be to be considered a "concentrated animal feeding operation" subject to Section 402.

The primary responsibility to regulate animal feeding operations rests with the Environmental Protection Commission and the Department of Natural Resources. The Commission is charged with developing rules regulating the construction and operation of animal feeding operations including the management of the manure generated. [§459.103, §459A.104] "Animal feeding operation" is broadly defined to mean a lot, yard, building or area in which animals are confined and fed for at least forty-five days in a twelve-month period. [§459.102, §459A.102] As the definition of "animal feeding operation" is not further qualified as to the minimum number of animals that must be confined, the Commission would have what appears at first look to be very broad statutory powers over any animal feeding operation having two or more animals that are confined to a lot or building at least 45 days a year. However, Iowa Code Chapters 459 and 459A contain a bewildering degree of detail as to what size of operations need what permits and approvals and the general criteria they must meet to get such permits and approvals. These statutory details significantly limit the Commission's flexibility to address animal feeding operation concerns.

Chapter 459 deals with "confinement feeding operations" while Chapter 459A addresses open lot operations. "Confinement feeding operations" are those where the entire operation is under a roof and not exposed to precipitation while open lot operations are those were the animals and the manure they produce are at least partially exposed to precipitation. It would be nearly impossible to summarize every regulatory provision of Iowa statute in a brief format but some of the more important provisions are summarized below.

The statutory requirements for "confinement feeding operations" (i.e., totally roofed operations) reflect a mix of air quality and water quality concerns. Air quality is primarily addressed by specifying the minimum distance confinement structures, including manure storage facilities, have to be from residences, businesses, etc. [§459.202] In general, only the operations exceeding 500 animal units are subject to these siting requirements.[9] [§459.205] Water quality concerns are addressed through a variety of provisions including the following ones:

- No discharge provision. Manure from a confinement feeding operation cannot be directly discharged into a water of the state or into a tile line that discharges into such state waters. Additionally, the manure must be retained between manure application periods and the manure must be disposed of in a manner so as to not cause surface or ground water pollution although disposal in accordance with applicable statutory and administrative rule requirements is deemed to be compliant with the "no pollution" requirement. [§459.311]. These provisions apply to confinement feeding operations of any size.

- Manure management. Manure management plans are required for all confinement operations over 500 animal units. Such a plan must show how and where the manure will be applied to meet various requirements including separation distances and crop nutrition needs and must be updated to reflect current operations. [§459.312]

- Construction permits. Construction permits are required for the buildings and other structures, including manure handling facilities, for all confinement feeding operations having 1000 animal units or more. Additionally, permits are required for any "unformed manure storage structure" (e.g., aerobic lagoons, anaerobic structures and earthen manure storage basins) for operations of any size. [§459.303] The structures associated with confinement operations requiring a permit must meet a number of statutorily mandated requirements dealing with location, construction standards, manure storage capacity, etc.

[9] Animal units are defined in equivalence to slaughter or feeder cattle, where one such animal is one animal unit. Butcher or breeding swine weighing more than 55 pounds constitute 0.4 animal units, a horse 2.0 animal units, etc. [§ 459.102]

Compared to confinement feeding operations that cannot discharge directly to a water of the state, some open lot operations are allowed to discharge provided certain statutorily-mandated standards are followed. Also, there are no statutorily-mandated separation distances for the siting of open feedlots. Open lots must generally meet the following requirements:

- Minimum effluent control. At a minimum, the solids in the runoff (i.e., effluent) from an open lot operation of any size must be settled before the runoff enters a state water. Statute provides specific parameters regarding velocity and time and compliance with those parameters are considered proof of solids settling. [§459A.401]

- Operation permits. The larger open feedlots as well as some smaller lots are required to have an operation permit unless it can be shown the runoff from such feedlots will not enter a water of the state. [§§459A.202, 401] An operation permit specifies the conditions under which a feedlot can discharge to a water of the state. In general, the open lots that require an operation permit must capture, store and land apply most of the feedlot runoff and can only have a direct discharge during significant precipitation events although alternative technology systems may be allowed if they provide an equivalent degree of treatment. [§459A.303] Iowa statute does not stipulate the size of the open lot operation that requires an operation permit but instead defers to rules adopted by the Commission and the EPA. These rules basically require operation permits for operations of 1000 animal units or larger as well as some smaller ones if the Department has determined the operation presents a significant environmental risk. The operation permit requirements are in large part intended to satisfy the primacy requirements of the Clean Water Act's Section 402 (NPDES permits) program as the EPA considers animal feeding operations over 1000 animal units as well as some smaller ones to be point sources subject to Section 402 permit requirements if they will have a direct discharge.

- Construction permits. Construction permits are required for the construction of any effluent settling basins or alternative technology for any open lot operation that requires an operation permit. [§459A.205] Such structures must comply with a number of statutorily-mandated standards. [§§459A.206, 402]

- Nutrient management plans. Unless an alternative technology system is used, open lot operations requiring an operation permit must also prepare and maintain a nutrient management plan that is similar in nature to the manure management plans required for confinement feeding operations. [§459A.208]

County control over the siting and operation of animal feeding operations is limited. There is no statutory requirement that notice of open lot operations be provided to counties for their review and comment prior to the Department issuing construction or operation permits. For "confinement feeding operations", statute requires that counties be provided a copy of a construction permit application but, in general, the Department must issue a permit if the proposed operation meets all relevant statutory and rule requirements. [§459.304] If a county elects to participate in the so-called master matrix process, a proposed operation must also be evaluated on a number of factors as established in a rule-adopted matrix and must achieve a minimum score before the Department can issue the construction permit. [§459.305] To the extent the master matrix requires proposed operations to go "above and beyond" the minimum statutory requirements for operations sited in non-participating counties, counties can have some influence on the siting and operation of confinement operations by electing to participate.

Some Iowa counties have in the past attempted to regulate animal feeding operation operations by passing county ordinances that further restricted or controlled such operations beyond state requirements. In general, the Iowa Supreme Court has ruled that animal feeding operations are agricultural uses and as such are exempt from county zoning authority even if the operation is not part of a traditional farming operation where much of the feed is raised on the surrounding land.[10] As a result,

[10] *Kuehl v. Cass County* 555N.W. 2d 686 (Iowa 1996)

counties cannot use their zoning powers to regulate animal feeding operations. Additionally, the Iowa Supreme Court ruled in one case that a county's home rule ordinances regulating various aspects of animal feeding operations were either preempted by or inconsistent with state law and regulations, thereby invalidating the home rule ordinances.[11] Following that case, the Iowa General Assembly explicitly preempted county home rule authority over animal feeding operations with passage of Iowa Code Section 331.304A in 1998. That section specifically prohibits a county from adopting or enforcing county legislation regulating animal feeding operations unless expressly authorized by state law.

State threatened and endangered species

Iowa law provides for the listing of threatened and endangered species by the Natural Resources Commission. [§481B.3] The taking of such state-listed species as well as federally-listed threatened and endangered species is prohibited unless specifically authorized by the Director of the Department of Natural Resources. [§481B.5] The state definition of "take" is similar to the federal definition in the federal Endangered Species Act and while there is no state case law further defining "take" it is likely the destruction of habitat for state-listed species would be considered a taking under Iowa law.

Unlike Section 7 of the federal Endangered Species Act, Iowa's endangered species law does not explicitly require state agencies to consider if their actions, including rulemaking or the granting of permits, would jeopardize state or federally-listed species.

Aquatic species management

The fish and other aquatic animals found in water bodies can be impacted by water quality; water bodies with degraded water quality often have degraded aquatic communities with the more pollutant-tolerant species dominating. However, this a two-way street and the species present can also affect water quality, especially so when non-native species are accidentally or purposely introduced. The introduction of the common carp in last half of the 19th century, for instance, was touted as providing splendid fishing opportunities but in fact carp have had a significant, adverse effect on water quality and aquatic species statewide. More recent arrivals like the zebra mussel also have the potential to dramatically impact water quality and native aquatic species.

The overall responsibility to "…protect, propagate, increase, and preserve the wild mammals, fish, birds, reptiles, and amphibians of the state" rests with the Department of Natural Resources. [§456A.23] Several statutory provisions are of special interest insofar as the introduction and control of non-native aquatic species. The stocking or introduction of live fish into waters of the state, with the exception of privately-owned ponds and lakes, is prohibited unless authorized by the Department. [§481A.83] The placement or introduction into inland or boundary waters of the state of any fish or spawn thereof that are not native to such waters is also prohibited unless specifically authorized. [§481A.47] The Natural Resources Commission is charged with developing a long-term, statewide aquatic invasive species water management plan; adopting rules that restrict the introduction, propagation, use, possession and spread of aquatic invasive species; and identifying bodies of water with infestations of aquatic invasive species. [§456A.35] The Department must also post notice of such infestations and may prohibit boating, fishing, swimming, and trapping in infested bodies of water. The transportation of invasive aquatic species via boats and trailers is also prohibited.

The Natural Resources Commission also has the authority to operate fish hatcheries for the purpose of stocking the waters of the state with fish. [§481.4].

[11] *Goodell v. Humboldt County* 575 N.W. 2d 486 (Iowa 1998)

Comprehensive water planning, data collection and research

Some states have specific constitutional or statutory mandates for comprehensive, statewide water planning. The Idaho Constitution and statutes, for instance, provide for a Water Resources Board and charge it with formulating and implementing a state water plan. The Iowa General Assembly foresaw such a water planning need in 1949 when it created the Iowa Natural Resources Council, a predecessor agency of the Department of Natural Resources, and charged it with developing a comprehensive statewide program for the control, utilization and protection of the surface water and groundwater resources of the state. The Water Plan '78 Framework Study was the Council's initial attempt to develop a truly comprehensive plan; previous planning efforts were of a more limited scope. This comprehensive planning requirement was stripped out of the Iowa Code in 1982 and replaced with more specific planning requirements relating to water needs and allocation and floodplain mapping. Even these two water planning requirements sunsetted in 2004. [§455B.262]

There are a number of water-related planning requirements sprinkled throughout the Iowa Code. Counties, for instance, are required to develop a land use plan that considers, among other things, streams, rivers, wetlands, lakes and aquifers. [§352.1] Soil and water conservation districts have the power to develop a soil and water resource conservation plan. [§161A.7] The Environmental Protection Commission, the Natural Resources Commission, and the Secretary of Agriculture are also charged with specific planning requirements relating in some way to some aspect of water, such as the Environmental Protection Commission's duty to develop comprehensive plans and programs for the prevention, control and abatement of water pollution. [§455B.173] However, there are no specific provisions in the Iowa Constitution or Iowa statute that require a comprehensive, statewide water plan that considers all aspects of water be developed and periodically updated.

The 2008 General Assembly did create the Water Resources Coordinating Council, a group of 12 state department heads and public university deans, chaired by the Governor, with the intent of preserving and protecting Iowa's water resources and coordinating the management of those resources. (HF 2400, 82nd GA) The legislation charges the Council with the coordination of water-related functions including protection strategies, planning and assessments and also provides that the Council may "oversee" the development of a long-term comprehensive water quality and quantity plan. However, it is not clear what powers the Council has as a group to carry out water policy or how the Council's assigned duties and functions mesh with the powers and duties of pre-existing individual state agencies and commissions. No funding or dedicated staffing was provided for the Council and the assumption is any technical and administrative support functions for the Coordinating Council will have to be provided by state agencies' staff.

Water data collection, analysis and research are essential parts of water policy development and implementation. Regulatory requirements that implement water policy must be justified by a public need as regulations not linked to a specific ill or expected result are subject to constitutional due process attacks. Sound, scientifically-defensible water data and research can provide the rationale for regulations and policy. Like its water planning functions, Iowa's water data collection and analysis and water research functions are dispersed across many different agencies with no centralized authority, responsibility, or coordinating function. To a large extent, Iowa depends on federal and state university research functions and federal research dollars for water resources research and there is no single, dedicated water research funding source.

Special purpose districts

Iowa law provides for a number of what generally would be described as special purpose districts with varying purposes and powers. Drainage districts and levee districts, for instance, have the power to construct and maintain drainage and flood control facilities and to assess benefited landowners the costs thereof. County soil and water conservation districts are required to set soil loss limits and enforce them, can construct and maintain flood and erosion control structures, and are charged with developing soil and water conservation plans. Other special districts with water-related functions include rural water districts, sanitary districts, recreational lake benefited districts, soil conservation and flood control districts, and rural improvement zones. Iowa law simply provides the authorization to form such districts and to carry out the enumerated powers; they are not specifically required by law.[12]

Iowa law at one time created six conservancy districts, later named water resource districts, the boundaries of which were defined by major river basin divides. The conservancy districts were given the authority to prepare water resource plans and to construct various water structures. These districts never achieved their intended purpose for various reasons, including a lack of funding, and the law creating these districts sunsetted in the 1980s.

Nuisance law

Iowa's statutory nuisance law is found in Iowa Code Chapter 657. A nuisance is defined to be whatever is injurious to health, indecent, or unreasonably offensive to the senses, or an obstruction to the free use of property, so as essentially to interfere unreasonably with the comfortable enjoyment of life or property. A civil action may be brought to enjoin and abate the nuisance and to recover damages sustained on account of the nuisance. [§657.1] Things specifically listed as such nuisances include obstructing, without legal authority the passage of any navigable river, harbor, or collection of water and the "…corrupting or rendering unwholesome or impure the water of any river, stream, or pond, or unlawfully diverting the same from its natural course or state, to the injury or prejudice of others." [§657.2]

The efficacy of Iowa's nuisance laws, common or statutory, to address water issues and problems is muted by the fact that the Iowa General Assembly has passed laws specifically dealing with issues like water rights and pollution. In general, any right of action under common or statutory nuisance law is displaced by more specific laws on the particular matter at hand. Where a facility or person is operating in accordance with a duly issued permit or according to specific regulations, the courts will likely rule that such is not a nuisance. For instance, a wastewater treatment plant discharging pollutants into a stream likely would not be declared a nuisance by the courts if the discharge was compliant with the terms of a state or federally-issued discharge permit. The Iowa General Assembly has specifically said animal feeding operations are not public or private nuisances unless they are failing to comply with relevant regulations or are not using prudent, generally accepted management practices. [§§657.8 and 11]

Interstate waters

The Mississippi, Missouri and Big Sioux Rivers form Iowa's eastern and western boundaries and Iowa shares jurisdiction with neighboring states. In addition, there are streams and rivers that originate in Iowa and flow into Missouri and Minnesota and ones that flow from Minnesota into Iowa. There currently are no formal interstate agreements between Iowa and its neighboring states regarding the management of interstate waters nor are there any federal court orders or decrees that would preempt or override any state actions. Relatively few state-to-state disputes over the management of these interstate waters have

[12] While there are currently soil and water conservation districts in every county, statute provides a district can be dissolved by petition and referendum. Iowa Code § 161A.10.

arisen over the years and most issues of concern have been resolved through informal coordination and negotiations. Iowa did join with Missouri and Nebraska in opposing the proposed use of water from one of the Missouri River mainstem reservoirs for an interstate coal slurry pipeline and this case reached the U.S. Supreme Court. The Supreme Court ruled the water contract between the Secretary of Interior and the pipeline company was invalid and the coal slurry pipeline was never built.[13]

Iowa belongs to the Upper Mississippi River Basin Association and the Missouri River Association of States and Tribes (MoRAST), two interstate basin organizations. These organizations are primarily intended to provide a forum for discussing and resolving issues of concern but have no direct power regarding the management of these interstate rivers. Iowa Code Chapter 28L does create a state Interagency Missouri River Authority comprised of the Governor, the Chair of the Utilities Board, the Secretary of Agriculture, and the Directors of the Departments of Natural Resources, Transportation and Economic Development or their designees. The law stipulates that in regard to participation on MoRAST, Iowa's position on any substantive proposal or action is to be decided by a majority vote of the Authority's members. In addition, the Authority is seeking input from stakeholders with regard to issues impacting the Missouri River basin.

Emergency Management

Under Iowa Code Chapter 29C, the Governor and the Homeland Security and Emergency Management Division of the Department of Public Defense have various powers and responsibilities to plan for and deal with disasters with "disaster" being defined to include floods and droughts. [§29C.2] The Governor can declare a state of public disorder and under such declaration prohibit various activities as believed necessary to help maintain life, health, property, or the public peace although such a declaration is limited to ten days. [§29C.3] The Governor also can proclaim a state of disaster emergency and while such a declaration is in effect has the power to do a number of things to deal with the disaster including mobilizing and utilizing all available resources and to suspend the provisions of any regulatory statute or rule of any state agency if such would prevent, hinder or delay necessary action.

The Homeland Security and Emergency Management Division is responsible for preparing and executing the emergency management programs of the state and must prepare a comprehensive plan and program for disaster preparedness, response, recovery, mitigation, emergency operation and emergency resource management of Iowa. [§29C.8]. Chapter 29C also provides for the appointment of county emergency management commissions and emergency management coordinators to cooperate with the Emergency Management Division and coordinate emergency management functions in the county. [§§29C.9, 10]

[13] ETSI Pipeline Project v. Missouri, 484 U.S. 495 (1988). The Supreme Court held that the Secretary of Interior did not possess the legal authority to execute the water withdrawal contract without the approval of the Secretary of the Army.

State and local agencies and institutions with water functions

Department of Natural Resources.

The Department of Natural Resources (DNR) largely consists of an amalgam of separate authorities, agencies and programs that existed prior to 1986 when it was formed. In 1983, the then-existing Iowa Natural Resources Council and Department of Environmental Quality were combined into a new Department of Water Air and Waste Management (WAWM) with the policy-making functions of their independent commissions merged into a new Water, Air and Waste Management Commission. Further consolidation of Iowa's resource agencies occurred again in 1986 with the merger of WAWM, the Energy Policy Council, the Iowa Geological Survey, and the Conservation Commission.

Today, the administrative and policy making functions of the DNR are largely vested in its director and two commissions; the Environmental Protection Commission and the Natural Resources Commission. The general makeup and duties of both Commissions are described in Iowa Code Chapter 455A and include the specific responsibility to adopt administrative rules implementing over 20 chapters of the Iowa Code. Each of these chapters in turn provides more specific duties and responsibilities of the Commissions and the Director.

The Director is appointed by the Governor and can organize the DNR as he or she sees fit. The Deputy Director and Division Administrators are appointed by the Director and serve at the Director's pleasure. [§455A.7] The Director's statutory powers and duties, such as issuing permits and taking enforcement actions, can be delegated to an employee as long as the Director retains overall responsibility. [§455A.4.2]

The Department and the two Commissions collectively have responsibilities enumerated in the following Iowa Code Chapters that relate in some way to state water policy:

- 28L State Interagency Missouri River Authority
- 455 B Air quality; water quality; water allocation and use; floodplain management; revolving loan programs; solid, radioactive, infectious and hazardous waste; underground storage tanks; contaminated sites, agricultural chemical restrictions and vehicle recycling.
- 455 E Groundwater protection
- 455 D Waste volume reduction
- 455 F Household hazardous waste
- 455 G Fuel storage tanks
- 455 H Land recycling and remediation
- 455 I Uniform environmental covenants
- 455 K Environmental audits
- 456 Geological Survey duties
- 456A Various provisions including fish restoration, recreation comprehensive plan, watershed projects and lake restoration
- 457 A Conservation easements
- 458 A Oil, gas and mineral production
- 459 Confinement feeding operations
- 459 A Open feedlot operations
- 460 Agricultural drainage wells and sinkholes
- 461 A Public lands and waters
- 462 A Water navigation
- 462 B Protected water areas
- 464 A Dams and spillways
- 465 C State preserves

- 455 Watershed improvement
- 469A Hydroelectric plants
- 481 A Fish and wildlife conservation — fish hatcheries, fish ways at dams, fishing regulations, aquaculture
- 481 B Endangered plants and animals
- 482 Commercial fishing
- 483 A Fishing and hunting regulations
- 484 A Migratory game birds - use of fees for wetlands

Department of Agriculture and Land Stewardship

The Iowa Department of Agriculture and Land Stewardship's (IDALS) primary purpose is to promote and advance the interests of agriculture in general but also to encourage the land to be managed in a manner to avoid irreparable harm. [§159.2] The primary policy-making authority for IDALS rests with the Secretary of Agriculture who is one of the few remaining popularly-elected department heads. [§39.3] Although IDALS does not have an agricultural commission with overall rulemaking and enforcement authority, the Secretary must work cooperatively with a number of statutorily-created boards and advisory councils that have specific duties. For instance, statute provides for a pesticide advisory committee to, among other things, recommend rules regarding the sale and use of agricultural chemicals to the Secretary. [§206.23]

Many of IDALS' functions and duties relate to livestock and commodities but some of its more important water-related duties include the collection and dissemination of meteorological data by a state climatologist, the regulation of pesticide use, watershed protection programs, support for county soil and water conservation districts and the funding of watershed protection projects.

The soil and water conservation related duties of IDALS are largely carried out by the Division of Soil Conservation (DSC). Prior to its merger with the Department of Agriculture in 1986, DSC was an independent agency. Unlike the other Divisions within IDALS, the DSC's rule-making authority rests with the State Soil Committee, a nine-member committee appointed by the Governor. Statute does provide, however, for a process to resolve differences if the Secretary disagrees with a Committee-proposed rule. The Committee also plays a role in formulating DSC budgets and in the appointment of the DSC Administrator, who serves at the pleasure of the Secretary, by recommending candidates for the job. [§161A.4] Specific water-related functions of the DSC include agricultural drainage well research and closure projects, providing technical assistance to county soil and water conservation districts in preparing soil and water conservation plans, administering and implementing watershed protection programs including the Water Protection Fund established under Section 161C.4, and cooperating with Iowa State University and other organizations on soil and water conservation research, demonstration and implementation projects. DSC staff also work closely with DNR staff in coordinating funding sources for soil and water conservation projects.

Department of Health

At one time, most of Iowa's programs relating to wastewater treatment and drinking water safety were vested in the Department of Health. These responsibilities were transferred to the Department of Environmental Quality, with additional duties being added, in the early 1970s. The Department of Natural Resources and the Environmental Protection Commission are now responsible for these programs and the Department of Health's primary role in these areas is one of oversight and support of county health departments that have jurisdiction over small, non-discharging wastewater treatment facilities and private drinking water supplies.

The Department of Health would, of course, be involved in any matters involving outbreaks of water-borne disease and its staff provides epidemiological and health-related advice to the DNR on such matters as contaminant levels in locally-caught fish and pathogenic risks from water recreation.

Homeland Security and Emergency Management Division

The Homeland Security and Emergency Management Division of Iowa's Department of Public Defense is the state's primary agency to coordinate the state's responses to disasters, which by definition includes floods and droughts. [§§29C.1, 2] The Division's administrator is appointed by the Governor and charged with, among other things, preparing a comprehensive plan as to how the state will deal with disasters and coordinating disaster recovery activities between the Federal Emergency Management Agency, state agencies, and local emergency management commissions. [§29C.8]

Watershed Improvement Review Board

The Watershed Improvement Review Board (WIRB) was created by the General Assembly in 2005 with the primary purpose of promoting locally-led watershed projects that will result in water quality improvements. Consisting of 11 Governor-approved voting members and four non-voting members of the General Assembly, the WIRB was charged with a number of duties including awarding grant funds for local watershed projects using moneys from the Watershed Improvement Fund created by the same legislation, assisting with the development of monitoring plans for such local projects, reviewing project monitoring results before, during and after completion of projects, reviewing the costs and benefits of mitigation practices utilized by a project and developing rules to implement the program. [§466A.3] The WIRB was not provided with any permanent technical staff and the Division of Soil Conservation is directed to provide administrative assistance with funding for such assistance limited to one percent of the annual Fund appropriation or $50,000, whichever is less. [§466A.6]

Iowa State University / National Soil Tilth Laboratory /

Leopold Center for Sustainable Agriculture / Iowa Water Center

Iowa State University was the nation's first land-grant institution as authorized by the Morrill Act of 1862. As provided for in the Morrill Act and later acts, Iowa State's functions include the teaching of agriculture, an agricultural experiment station, and a cooperative extension program. Much of Iowa's water-related research, especially research related to agricultural practices, is carried out at Iowa State. The Departments of Agricultural and Biosystems Engineering and Agronomy are especially involved in water-related research. Iowa State University also houses the National Soil Tilth Laboratory, the Leopold Center for Sustainable Agriculture, and the Iowa Water Center.

The National Soil Tilth Laboratory, which is organizationally a part of the U.S. Department of Agriculture's Agricultural Research Service, is a multi-disciplinary laboratory comprised of four research units: Soil and Water Quality, Agricultural Systems-Atmospheric Processes and Exchanges, Swine Odor and Manure Management, and Agricultural Land and Water Management. These four units represent an integrated effort to address the problems of crop and livestock management on environmental quality (air, soil, and water) and to develop production systems that are more efficient while enhancing environmental quality.

The Leopold Center for Sustainable Agriculture was established as part of the Iowa agricultural and home economics experiment station at Iowa State University by the 1987 Iowa Groundwater Protection Act. Its primary purpose is to conduct and sponsor research to identify and reduce negative environmental and socio-economic impacts of agricultural practices, with an eye toward promoting sustainable systems. [§266.39] Guided by an advisory board as specified in statute, its research funds come in part from a tax on nitrogen fertilizer. [§455E.11]

The Iowa Water Center is a successor in name to the Iowa State Water Resources Research Institute (ISWRRI). The 1964 federal Water Resources Act provided for the creation of state water resources institutes to encourage interdisciplinary water research as well as the education and outreach needed to insure research results are applied to real world problems and ISWRRI was created in 1964. Although housed at Iowa State, the Iowa Water Center is intended to be a multi-disciplinary, multi-institutional organization that sponsors research in various water disciplines. With the exception of several part time staff provided by Iowa State, the Center is funded by federal funds; no direct state funding is received for its operation or research activities.

University of Iowa / State Hygienic Laboratory /

Center for Health Effects of Environmental Contamination

The State Hygienic Laboratory is a part of the University of Iowa and is the primary institution to evaluate the environmental effects and scientific needs, whenever requested to do so by any state agency, state institution, or local board of health, when the investigation or evaluation is necessary in the interest of environmental quality and public health and for the purpose of preventing epidemics of disease. [§263.7] The DNR is required to contract with other state agencies for the laboratory, scientific field measurement and environmental evaluation services needed to carry out its functions and duties and the Hygienic Laboratory is typically the agency that performs those services. [§455B.103] The DNR has very limited in-house analytical capabilities to analyze water and other samples for contaminants and the Hygienic Laboratory works closely with the DNR in a variety of water monitoring and analytical tasks as provided for in yearly contracts.

The Center for Health Effects of Environmental Contamination (CHEEC) was created by the 1987 Groundwater Protection Act with the purpose of determining the levels of environmental contamination specifically associated with human health effects. [§263.17] Although housed at the University of Iowa, CHEEC is intended to be a cooperative effort between a number of organizations including the Hygienic Laboratory, the Iowa College of Law, Iowa State University, the Iowa Department of Agriculture and Land Stewardship and the DNR. Like the Leopold Center at Iowa State University, a portion of its funding comes from a tax on nitrogen fertilizer.

Soil and Water Conservation Districts

Soil and Water Conservation Districts (SWCDs), known as Soil Conservation Districts prior to 1975, have a number of powers and duties that relate to the soil and water resources within their jurisdiction. The districts are organized by county with the exception of Pottawattamie County, which has two SWCDs within its borders. The SWCDs are governed by five elected commissioners. [§161A.5}.

Other than the establishment of soil loss limits as provided for in Iowa Code Section 161A.44 and their powers to enforce such, the SWCDs generally must work with landowners on a voluntary basis in exercising their powers and duties. [§161A.7.13] Their powers include the authority to conduct surveys, investigations, and research (in cooperation with Iowa State University) on erosion and floodwater; to develop a soil and water conservation plan for their district, to conduct demonstration projects; to construct, improve and maintain structures necessary for soil and water conservation; and to enter into agreements with other agencies and institutions for purposes related to soil and water conservation. [§161A.7]

SWCDs can also form subdistricts upon petition by landowners within a proposed subdistrict for the purpose of carrying out flood prevention and watershed protection projects. [§161A.13] A subdistrict must be within the same watershed but cannot include areas within a municipality. [§161A.14]. Subdistricts are governed by the SWCD commissioners and generally have the same powers as SWCDs but, in addition,

have the power to condemn property for their purposes and to impose taxes for associated costs. [§§161A.20, 23]

Soil Conservation and Flood Control Districts

County boards of supervisors have the authority to establish districts for the purpose of soil conservation and flood control and to construct improvements and structures that are necessary to achieve those purposes. [§161F.2] Such districts can also include drainage benefits. [§161F.3] The approval of the Soil and Water Conservation District in which the district is to be located as well as the approval of the Department of Natural Resources is required. [§161F.5]

Benefited Recreational Lake Districts and Water Quality Districts

Iowa Code Chapter 357E provides authority for two types of districts, a benefited recreational lake district and a water quality district. Combined districts are also authorized. Although there are some organizational differences, both types of districts are authorized to construct and maintain structures and carry out other practices, such as dredging, to improve the water quality of a water body. Neither type of district has eminent domain powers. The districts can be formed upon petition to the county board of supervisors and the district as such must be contiguous to the body of water the districts are intended to improve. Once the formation of a district is approved, an engineer's report must be prepared detailing the planned improvements and costs thereof and elections held to appoint three trustees and approve a tax levy. However, any agricultural land within an established district cannot be taxed. If the land in a lake district is 400 acres or more, the Natural Resources Commission must appoint two additional trustees.

Levee and Drainage Districts

Iowa Code Chapter 468 provides for the establishment of levee and drainage districts governed either by the county board of supervisors or a board of trustees. The formation, purposes, authorities and funding of levee and drainage districts are covered in more detail in "Drainage" above. There are about 3000 legally organized drainage districts in Iowa that include approximately six million acres or land.

Local Boards of Health

Iowa Code Chapter 137 establishes county boards of health consisting of five members appointed by the county board of supervisors. At least one member of the board must be a doctor. Cities with populations of 25,000 or more can also form a city board of health and statute also provides for the formation of district boards of health that combine the county and city boards.

Local boards of health have the power to enforce state health laws and to make and enforce rules and regulations "not inconsistent with law" as may be necessary for the protection and improvement of the public health. Two specific duties of county boards of health relate to the regulation of private wastewater treatment facilities such as septic tanks with soil absorption fields and private water supplies. Additionally, many county boards of health issue well construction permits under the authority of a Chapter 28E by agreement with the Department of Natural Resources and administer funds provided under the grants to county program for the testing, closure and rehabilitation of private wells. [§135.11, §455B.11]

Water Districts

Iowa Code Chapters 357 and 357A provide for the formation of water districts and rural water districts, respectively, to provide a source of water for domestic, fire protection or other uses for those who are not

otherwise served by a public water supply. The language and procedural requirements of each chapter is somewhat different but in general the board of supervisors can form a district upon petition of the voters in the proposed district (25 percent for a water district, 30 percent for a rural water district). Once formed, a district is governed by a board of trustees or board of directors. Chapter 357A provides a greater level of detail as to the powers and duties of a rural water district's board versus those of Chapter 357 water districts. Provisions are also made for combined water and sanitary districts.

Sanitary districts

Similar to water districts but for wastewater collection and treatment purposes, Iowa Code Chapter 358 provides a county board of supervisors with the power to create sanitary districts upon petition of eligible voters in the proposed district. Once formed, such a district is governed by a board of trustees that have various powers such as the power to levy a tax on the property within a district for administrative purposes and to establish rates and charges for the utilities provided.

Rural Improvement Zones

Iowa Code Chapter 357H provides the authority for a county Board of Supervisors to form a Rural Improvement Zone around a private lake in counties having a population of less than 20,000 upon petition of at least 25 percent of the residents of a proposed zone. The elected Board of Trustees has the authority to construct and maintain improvements, improvements being defined to include dredging, erosion control measures, land acquisition, and related improvements within or outside of the boundaries of the zone with funds derived from property taxes.

Nonprofit Corporations

Iowa Code Chapter 504 provides for three types of corporations: religious, public benefit, and mutual benefit. Of the three, the public benefit and mutual benefit corporations could serve as a legally-organized entity to do a number of things to implement water policy. Unless given specific powers elsewhere in the Iowa Code, such nonprofits do not have any specific powers to regulate, tax, collect fees, etc. but could serve as the legal entity to receive and disburse federal or state funds for such activities as water quality improvement. For instance, funds from Iowa's Watershed Improvement Fund can be awarded to a local watershed improvement committee formed under Chapter 504. [§466A.4]

To be authorized as a nonprofit corporation, a document setting forth various facts must be filed with the Secretary of State and articles of incorporation and bylaws must be established that identify the general purpose of the organization and the conduct of business.

Councils of Governments

Councils of Governments are authorized under Iowa Code Chapter 28H with the intent of providing, among other things, planning and technical services to its regional area and preparing regional development plans that include consideration of natural resources, conservation and recreational facilities. Seventeen Councils of Government as created by Executive Order 11, 1969 are recognized in the legislation and additional Councils can be formed by agreements pursuant to Iowa Code Chapter 28E.

Regional and Metropolitan Planning Commissions

Adjacent counties, cities and special districts such as sanitary districts can form a Regional or Metropolitan Planning Commission under Iowa Code Chapter 28I upon mutual agreement of their governing bodies. Such a Commission has the power and duty to prepare studies and comprehensive plans for the development of the area served and the plans. Among other things, the plans can include provisions for water supply, sanitation, drainage, and protection against floods and other disasters. Like a Council of Governments created by Chapter 28H, a Commission can also provide various planning-related technical services for the cities, counties and other political subdivisions in the area it serves.

Water Resource Districts

In 1970, the Iowa General Assembly created six Conservancy Districts with the district boundaries aligned along major drainage basin divides (Northeast, Iowa-Cedar, Skunk, Des Moines, Western and Southern). The Conservancy Districts, later renamed Water Resources Districts, were given broad powers for comprehensive water resources planning and construction of facilities. This attempt to provide a watershed-based organizational framework for water resources planning and implementation met with little success and the authorizing legislation, formerly contained in Iowa Code Chapter 467D, expired in 1988. The lack of taxation powers for operating expenses and resistance from county-based Soil and Water Conservation Districts are sometimes cited as the main two factors leading to the demise of these watershed-based districts. While these districts are no longer authorized, it's worth noting that Nebraska in 1969 merged the functions of many of their special purpose districts into watershed-based Natural Resources Districts that now are the primary governmental institutions for carrying out various water and natural resources programs in Nebraska.

VI. Summary and Conclusions

Both the federal government and state governments have the legal authority to implement water policy through a variety of regulatory and voluntary programs. The federal government's Constitutionally-enumerated power to regulate interstate commerce has proved to be a very potent power that has been used to regulate discharges of pollutants, require public water supplies to meet drinking water standards, regulate pesticides and prohibit actions that would destroy the aquatic habitat of threatened and endangered species. The interstate commerce power could arguably be used to regulate virtually all aspects of water across the nation including water allocation among and within states. To the extent federal regulatory policy conflicts with individual states' policies, the federal policy will prevail under the Supremacy Clause of the U.S. Constitution. Congress has, however, been hesitant to use this potent power to intrude on what might be considered a state's sovereign affairs unless states' collective failure to deal with an issue has created a problem of a national scope. The federal Clean Water Act is a prime example of where Congress felt states had not done enough to control pollution and established a strong federal water quality program as a result of states' inaction.

Even if the federal government does not directly regulate a water-related activity under its interstate commerce power, it can strongly influence water policy through voluntary programs like the National Flood Insurance Program and the various farm acts. Using the Constitutionally-enumerated power to provide for the general welfare, the so-called spending power, the federal government often conditions the availability of federal grants or financial aid on the recipient doing, or not doing, certain things. The National Flood Insurance Program, for instance, does not provide the federal government with regulatory power over floodplain development but it does require a local government to regulate such development, using its own local land use powers, as a condition of making federally-backed flood insurance available to its citizens. The "carrot" — the availability of flood insurance — in this case is big enough to convince most local governments with flood prone development to join the NFIP and regulate floodplain development. The conservation compliance provisions and the so-called sod buster and swamp buster prohibitions of the various farm acts are another example of such voluntary provisions. State and local governments as well as agricultural producers and others are increasingly dependent on federal grants and financial aid of various sorts and the federal spending power is a powerful tool that can be used to influence, if not directly control, water policy across the nation.

States have what would appear to be a free hand to regulate water-related activities — to do what they believe needs to be done in their own best interests - under their general police power authority. Many states including Iowa had state pollution laws of some sort well before the adoption of the federal Clean Water Act. And water rights and water allocation policy within states have long been defined by a combination of state common and statutory law with each state having its own unique approach. The primary legal constraints on a state's police powers are the need to show the regulations are not more stringent than needed to achieve a public purpose and to avoid equal protection and "takings" challenges.

In practice, though, a state's sovereignty over its own water policies is significantly constrained when Congress has spoken on an issue. Most states, for instance, have state statutes and administrative rules that regulate discharges from point sources and specify minimum drinking water standards for public water supplies and have adopted state water quality standards. But these statutes and rules are largely tailored to closely comport with the requirements contained in the federal Clean Water and Safe Drinking Water Acts and the EPA's implementing regulations. In dealing with matters like point source discharges, drinking water, and water quality standards, states often find themselves choosing between 1) adopting standards that either meet or exceed the EPA's implementing regulations and guidance or 2) ceding all control to the federal government.

Local governments and special purpose districts only have the powers specifically granted to them by their respective state constitutions and legislatures. As such, those powers are often limited by restrictions or conditions placed on the exercise of those powers. Iowa cities and counties for example have the ability to control land use through zoning but must exercise those powers in accordance with the

procedural requirements in the enabling acts including the preparation of comprehensive plan and appointment of a zoning commission and board of adjustment. A significant limitation on Iowa counties' zoning power is the inability to zone agricultural uses, which include animal feeding operations. Also, local floodplain zoning ordinances must meet or exceed state-mandated standards and must be approved by the Department of Natural Resources. County and city home rule powers appear at first look to give Iowa cities and counties fairly expansive powers to deal with matters of local concern but these powers have proven to be of limited use in implementing water policy.

The Iowa General Assembly has provided for the creation of a number of special purpose districts, each with their own unique powers and duties. Soil and Water Conservation Districts, Drainage and Levee Districts, Soil Conservation and Flood Control Districts, Benefited Recreational Lake Districts, Water Quality Districts, Water Districts, Rural Water Districts, Sanitary Districts, Rural Improvement Zones, Councils of Governments, Regional and Metropolitan Planning Commissions, and local Boards of Health all have statutorily-defined powers and duties that relate to water in some way.

Due to the multifaceted nature of water, its importance to our lives, and the many agencies and organizations that deal in some way with water, the actions needed to effect changes in Iowa's water policies could run the gamut from a simple change in a state rule to seeking major changes in federal legislation. Developing an implementation strategy for any needed changes in Iowa's water policies should be guided by the following questions and concerns.

- *To what extent do existing federal laws and programs deal with the same issue?* Due to the Supremacy Clause of the U.S. Constitution, it would be foolish, although not necessarily illegal, to establish state policy that was counter to federal policy, as the federal policy will always prevail. Adopting state water quality standards that were not compliant with or more stringent than the EPA's expectations, for instance, would be counterproductive as the EPA would then be forced to disapprove such standards and promulgate federal standards that then would be used for administration of the federal Clean Water Act. Control of point sources, public water supplies, endangered species, and pesticides are also areas where the federal government has established a strong federal voice through regulations while states still have significant latitude to govern their own affairs in the areas of water allocation and control of nonpoint sources of pollution. Even where the federal interest is in the form of voluntary programs such as the National Flood Insurance Program and the various farm acts, caution is needed as changes in state policies could potentially affect the ability of the state, local governments or individuals to participate in those federal programs.

- *To what extent do Iowa's Constitution or laws constrain, limit or prohibit any proposed changes*? Although states generally have the authority do a lot of things in the name of the public good or welfare, state constitutions or laws often place restrictions on the exercise of those powers. For some programs, such as Iowa's water allocation and floodplain management programs, the Iowa General Assembly has provided a broad grant of authority and left the details up to the administering agency or commission. Changes to such programs would be administratively easy ones that could be accomplished through administrative rulemaking. In other programs such as the regulation of animal feeding operations, the General Assembly has statutorily prescribed a great deal of detail leaving little latitude for changes without a change in the statute. The General Assembly has also placed a number of constraints and limitations on local powers such as zoning and home rule that often preclude a greater local voice in water-related matters without a change in statute.

- *What is the best approach for implementing any recommended changes*? Assuming there are no significant legal hurdles that can't be addressed, water policy can be implemented in a variety of ways at the federal, state and local levels using a regulatory or voluntary approach, or both. A regulatory approach might pass all the legal tests but on a more practical level the question is whether the level of resources needed to implement and enforce the regulations will be available. The Iowa General Assembly for example would have the legal authority to pass a law

establishing a regulatory program for nonpoint sources of pollution but the more relevant issue is how such a program would be carried out and enforced. Given the multiplicity of sources and the land area involved, a regulatory program over nonpoint sources would be administratively difficult and require a significant commitment of resources to implement and enforce those regulations. Iowa's traditional approach to nonpoint sources has been to work with producers and others on a voluntary basis by providing technical assistance and cost share funds for best management practices but voluntary approaches also have some limitations, not the least of which is the fact they do not legally require anyone to do anything.

No matter what the recommended changes in state water policy, an implementation strategy should be developed that clearly addresses the above and other relevant issues in a fair amount of detail. General, vague policy recommendations are seldom implemented as they don't provide the detail needed to move forward and are often left gathering dust on the shelf, only to be rediscovered decades later.

A review of the various federal, state and local laws, agencies and institutions show the legal authority and the institutional framework needed to implement most water policy changes already exist. But notably absent is a comprehensive water-planning function at both at the federal and Iowa governmental levels. As a result, water policy is often fragmented among various programs and administrative agencies with no overall plan. Many of the federal agencies have water-related planning functions, optional or mandatory, but there is no central coordinating agency or group to make sure the various water-related programs carried out by the various federal agencies work together as whole. The federal Water Resources Council was at one time such a coordinating body at the federal level but it was disbanded in the 1980's. The Iowa Natural Resources Council, a predecessor commission to the Environmental Protection Commission, was at one time charged with developing a statewide, comprehensive water plan for Iowa but this duty was stripped out of the Iowa Code in 1983. Today, there is a multitude of Iowa state and local governmental agencies and special districts with water-related planning functions but there is no unifying state water plan or coordinating body. The Iowa General Assembly in 2008 created the Water Resources Coordinating Council under the leadership of the Governor that might fill this role but the success of this body to provide that guidance and coordination is yet to be determined.