

Michigan at a Crossroads

Great Lakes Brief for the Incoming Michigan Governor

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All errors are the sole responsibility of the author.

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Introduction

The Great Lakes are an incredibly valuable natural resource. The five lakes – Superior, Michigan, Huron, Erie, and Ontario – cover more than 94,000 square miles with a total coastline of nearly 11,000 miles along eight states (Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania, and New York) and the Canadian provinces of Ontario and Quebec. The Great Lakes hold approximately 90% of North America’s fresh surface water, and are an important source of drinking water for many Great Lakes communities. It’s also the largest freshwater ecosystem in the world with rich biodiversity, including more than 170 species of fish (National Oceanic and Atmospheric Administration, 2018b). The Great Lakes are also an important economic driver for the United States. Over 200 million metric tons of cargo is transported by Great Lakes – St. Lawrence River ships every year, providing an estimated 329,000 jobs and \$60 billion of economic activity (Chamber of Marine Commerce, 2018). Millions of tourists visit the Great Lakes every year to fish, hunt, and enjoy the beaches, parks, and other recreational areas.

All this human activity, however, has placed the Great Lakes ecosystems under serious strain. Industrial activity, agriculture, and coastal development alter aquatic habitats and degrade water quality. Climatic changes such as warmer air temperatures are lowering lakes levels, which can negatively impact commercial navigation, recreational boating, and hydropower

generation, as well as fish and wildlife habitat. Water withdrawals that move water out of the Great Lakes Basin pose an additional threat. Invasive species such as the sea lamprey, zebra mussels, and Eurasian milfoil have fundamentally changed ecosystems within the Great Lakes to the detriment of many native species.

Fortunately, the protection and restoration of the Great Lakes environments is of high priority for the United States and Canadian national governments. Extensive funding is directed towards restoration initiatives and there are a number of bi-national collaborations that guide policymaking in the Great Lakes. In addition, the state, provincial, and local jurisdictions within the Great Lakes Basin also play an active role in the management and protection of Great Lakes resources.

Given the diversity of stakeholders in the Great Lakes region, it should come as no surprise that disagreements abound over how to best address environmental challenges. The purpose of this brief is to provide a concise summary of some of the key policy debates surrounding the management and use of Great Lakes water resources. The brief covers potential impacts and risks on the Great Lakes from invasive species, the transport of crude oil, and water diversions, all of which have recently emerged as policy issues for all Great Lakes jurisdictions, including the state of Michigan.

Overview of Select Water Issues Facing Michigan and the Great Lakes Region

Invasive Species

An invasive species is “a non-native species whose introduction does, or is likely to cause, economic or environmental harm or harm to human, animal, or plant health” (Executive Order, 1999). Invasive species are primarily spread by human activities, often unintentionally. Because the Great Lakes are interconnected, if aquatic invasive species are present in one lake they can readily spread to others. Researchers have estimated that, on the national level, economic damages associated with invasive species and measures to control them exceed \$120 billion per year (Pimentel, 2005).

Aquatic invasive species pose a significant threat to Great Lakes ecosystems. The sea lamprey is the first known aquatic invasive species detected in the Great Lakes, which arrived in the 1830s. Since then, it’s estimated that more than 180 invasive and non-native species have been introduced to the Great Lakes. These species compete with native species for food and habitat and have significantly impacted ecosystems by altering food webs,

reducing biodiversity, and changing water quality. Invasive species can increase native species mortality through direct predation or displacement. They degrade habitat by altering physical characteristics or water quality.

In 2012, aquatic invasive species were estimated to cost the Great Lakes region over \$200 million annually (Michigan Infographic, 2017). In addition to lost recreational and commercial fishing opportunities, aquatic invasive species can decrease waterfront property values and negatively impact tourism. They can cause damage to infrastructure and equipment. Users of Great Lakes water, such as municipal water suppliers and industrial facilities, incur an additional \$27 million a year in operating costs due to biofouling from invasive species such as zebra and quagga mussels (Rothlisberger et al., 2012). The Great Lakes Fisheries Commission has spent more than \$450 million since 1956 controlling sea lampreys (Ullrich, 2017). An estimated \$24 million is spent annually in Michigan to control and manage aquatic plants such as Eurasian water milfoil (Michigan Department of Environmental Quality, 2013).

Transport of Crude Oil

Oil production, and consequently transportation, has grown exponentially in the past few years. Crude oil output in the U.S. has nearly doubled since 2010 (Resnick-Ault, 2018; U.S. Energy Information Administration, 2018b). The U.S. Energy and Information Administration estimates that U.S. crude oil production will average 10.8 million barrels per day (b/d) in 2018, surpassing 9.4 million b/d in 2017 (U.S. Energy Information Administration, 2018a). The Great Lakes region has become a primary pathway for the transportation of crude oil from the Bakken formation in western North Dakota, eastern Montana, and southern Saskatchewan Canada; the Alberta, Canada oil sands; and the Permian and Eagle Ford fields in Texas to refineries in other areas of the country. The oil is primarily transported through the region by pipeline, rail, and vessel.

Although increased oil production has economic benefits, it simultaneously raises environmental, economic, and public health and safety concerns. The risks and benefits of oil transportation depends on the type of oil transported and the mode of transportation used.

Most of the oil transported through the Great Lakes Region travels by pipeline (Great Lakes Commission, 2015). Pipelines delivered 9.3 billion barrels of crude oil across the United States in 2014 (Association of Oil Pipelines, 2015). Active crude oil pipelines in the Great Lakes region extend over 9,122 miles (Christopherson & Dave, 2014). Approximately 70 percent of oil sands produced in Alberta ships to U.S. refineries via pipeline (Hanson et al., 2015). As transport by pipeline is typically \$5 to \$10 cheaper per barrel than transportation by rail (Hanson et al., 2015), growth in oil production increases the volume of oil flowing through existing pipelines and demands for new lines. Pipeline infrastructure throughout the United States is aging, and risks and costs of an oil spill to the region are unclear.

A variety of petroleum products, including gasoline, diesel fuel, and heating oil, is produced at refineries in the region and transported to markets by vessel. In 2011, about 3.5 million tons of refined petroleum products were transported on the Great Lakes and through the St. Lawrence River Seaway (U.S. Department of Homeland Security, 2014). No crude oil is currently transported by vessel on the Great Lakes, although vessels have recently begun transporting Alberta oil sands crude on the St. Lawrence River to refineries in Europe (Great Lakes Commission, 2015).

Due to the uncertainty around expanding pipeline capacities, North American crude oil producers are increasingly using rail to transport crude supplies (Frittelli et al., 2014). U.S. freight railroads delivered 435,560 carloads of crude oil in 2013 (roughly equivalent to 300 million barrels), compared to 9,500 carloads in 2008 (Frittelli et al., 2014). Most of the Bakken crude oil traveling through the Great Lakes Region by rail is transported to refineries in other areas (Great Lakes Commission, 2015; Association of American Railroads, 2014). Chicago, in particular, is the “primary rail hub of North America” with Bakken oil from

North Dakota moving through the “Chicago East Corridor” to East Coast refineries. Canadian railroads ship Canadian heavy and bitumen through the area to the Gulf Coast (Association of American Railroads, 2014).

With this increased movement of crude by rail, there has also been an increase in derailments. In 2013, a train transporting crude oil derailed and exploded in Quebec killing 47 people and causing billions of dollars in damages (Murphy, 2018). Since the Quebec derailment, there have been at least 24 subsequent train accidents in the U.S. concerning trains carrying crude oil (Brooks & Shaffer, 2015).

Great Lakes Water Diversions

The Chicago diversion from Lake Michigan into the Mississippi River system is currently the only major diversion out of the Great Lakes Basin (Tip of the Mitt Watershed Council, n.d.). In 2005, the Great Lake states (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin), with the consent of the U.S. Congress, entered into the Great Lakes-St. Lawrence River Basin Water Resources Compact (Compact) “[t]o act together to protect, conserve, restore, improve and effectively manage” and “remove causes of present and future controversies” in the Great Lakes Basin (Great Lakes States, 2005). As a result of the Compact, the Great Lakes-St. Lawrence River Basin Water Resources Council (Compact Council) was formed on December 8, 2008 after each of the eight states and Congress consented to the Compact. Under the Compact, “[a]ll New or Increased Diversions are prohibited,” with limited exceptions that include proposals by Straddling Communities or Straddling Counties and Intra-Basin Transfers (Great Lakes States, 2005).

Recently, Waukesha, Wisconsin received approval for the first new or increased diversion under the Compact that required review by the entire Compact Council (Wisconsin Department of Natural Resources, 2018). This new diversion was to supply Waukesha with cleaner water for its residents, as its groundwater levels had been lowered and contaminated by radium. Public water supply has always been a highly protected use under water law, and in fact, the Compact specifically requires all new or increased diversions to be used for this purpose.

Thus, purely industrial water diversions will face challenges under the Compact’s terms. Recently, Racine, Wisconsin requested a diversion for Foxconn, a company it incentivized to locate within its borders. The Racine diversion has been controversial, as it will not serve the general public with water, but rather, will be used by Foxconn. While the state of Wisconsin approved the diversion application, that approval has been challenged on the grounds that the diversion is for industrial use, and not public water supply.

Another use is treated differently under the Compact: bottled water. If a party is going to move water outside of the Basin in containers that are larger than 5.7 gallons, the diversion would be

covered by the Compact. If the containers are smaller, however, the state in which the diversion occurs will regulate the diversion as it sees fit (Wisconsin Department of Natural Resources, 2018). Known as the bottled water exception, this provision allows a state with bottled water companies locate within its borders decide how it wishes to regulate the bottled water diversions.

Except for water withdrawals that fall within the Compact’s terms, water diversions in the state of Michigan are mostly regulated by the common law (not statutory law), which most notably requires that water be used for “reasonable” purposes.

However, the state has adopted a state water withdrawal law for large water withdrawals. Under Michigan law, all new or increased withdrawals from any water source in Michigan, including groundwater, that exceed 2 million gallons a day require a permit, which applies to all water uses except for one. For bottled water withdrawals, this threshold is lower, as permits are required for withdrawals of 200,000 gallons per day or larger (Mich. Comp. Laws § 324.32723, 2008). A recent permit application by Nestlé in the state of Michigan has brought to light both the bottled water exception under the Compact and Michigan law regarding large diversions.

Discussion of Key Challenges

Invasive Species Threat Ballast Water

Until recently, ballast water has been one of the primary vectors, or pathways, of aquatic invasive species transport into the Great Lakes. Since the early 2000s, great strides have been made in ballast water management due to extensive regulation on the international, national, and state level. No new aquatic invasive species attributable to the ballast water of international vessels has been reported in the Great Lakes since 2006 (Canada and U.S., 2016).

In 2004, the International Maritime Organization (IMO) member states adopted the International Convention for the Control and Management of Ships’ Ballast Water and Sediment (BWM Convention). The BWM Convention “aims to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships’ ballast water and sediments.” The Convention requires all ships to carry out ballast water management procedures to a given standard, which are being phased in over time. The Convention entered into force on September 8, 2017.

In the United States, ballast water is regulated on the federal level by the U.S. Coast Guard (USCG) and U.S. Environmental Protection Agency (EPA). Although the United States has not ratified the BWM Convention, the current USCG and EPA regulatory regimes are consistent with the performance standards adopted by the IMO in the BWM Convention. The USCG and EPA, as well as some state agencies, have determined that the BWM Convention performance standard is a technologically achievable and practicable standard. However, there remains some debate among state natural resources managers and environmental non-governmental organizations as to whether they provide sufficient protection for the Great Lakes and St. Lawrence River.

The USCG, under authority provided through the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA), began requiring ballast water exchange for vessels

entering the Great Lakes in 1993. Ocean-going vessels were required to exchange ballast water at sea - that is, replace the freshwater taken on at port with ocean water at some point during the vessel’s voyage - to reduce the risk of invasive species introductions. The ballast water exchange requirement was expanded nationwide in 2004 pursuant to requirements in the National Invasive Species Act (NISA), the 1996 act that reauthorized NANPCA.

With the adoption of the BWM Convention, regulators attention shifted away from ballast water exchange towards ballast management performance standards based on the number of organisms allowed in discharged ballast water. In 2012, the USCG issued a final rule adopting a numeric performance standard for living organisms in ships’ ballast water discharged into waters of the United States, consistent with the BWM Convention (77 Fed. Reg. 17254, 2012). To comply with USCG rules, vessels need to install a ballast water management system (BWMS) that has been tested and certified by the USCG as being capable of killing or removing enough organisms to meet the standards.

Existing ships were required to comply with these performance standards at the first scheduled dry-dock after January 1 2016, and new ships at delivery. As of February 2018, six BWMS have been “type approved” by the USCG. As these systems come online, there are anticipated to be questions raised about the effectiveness of the testing regime and whether the BWMS are installed and operated properly and functioning as designed.

In 2008, the U.S. Court of Appeals for the Ninth Circuit ordered the EPA to withdraw a longstanding EPA rule that exempted ballast water and other discharges incidental to the normal operations of vessels from the Clean Water Act’s National Pollutant Discharge Elimination System (NPDES). In December 2009, EPA issued a final NPDES Vessel General Permit (VGP) to regulate 26 discharges incidental to the normal operations of commercial ships at least 79 feet in length, and to regulate ballast water discharges from all non-recreational, non-military vessels, including commercial fishing vessels. The current version of the VGP expires in December 2018.

The VGP contains numeric ballast water discharge limits for most vessels. The permit generally aligns with requirements contained within the 2012 U.S. Coast Guard ballast water rulemaking. EPA, however, has imposed additional permit conditions on vessels entering the Great Lakes. Under the VGP, all vessels that are equipped to carry ballast water and that enter the Great Lakes must continue to carry out ballast water exchange. Vessels that operate outside the U.S. Exclusive Economic Zone (more than 200 nautical miles from any shore) and then enter the Great Lakes via the Saint Lawrence Seaway System must undertake saltwater flushing of ballast tanks. EPA imposed these additional requirements due to concerns regarding the effectiveness of treatment systems in freshwater environments.

On the state level, the state of Michigan has been a leader among Great Lakes states regarding ballast water regulation. Michigan enacted ballast water control legislation in 2005. The legislation required all ocean-going vessels engaging in port operations in Michigan to obtain a permit from the Michigan Department of Environmental Quality (MDEQ) starting in January 2007. To obtain a permit, ocean-going vessels must either certify that they will not discharge ballast water in Michigan or will treat ballast water prior to discharge. The current version of the permit was issued on January 31, 2017.

Ballast water exchange or saltwater flushing of ballast tanks is not an acceptable treatment method under Michigan's permitting program. Michigan's regulatory regime is therefore more stringent than the federal regime, as the USGC permits ballast water exchange until a vessel's compliance deadline. Michigan's regulatory regime is also more stringent than the other Great Lakes states legal regimes which are generally harmonized with the USCG/EPA regime.

The maritime industry has long argued for the consolidation of the ballast water regulations under the authority of one federal agency, as they view the USCG and EPA rules as duplicative. Some advocates call for centralization of responsibility within the USCG, while others argue it should be centralized with the EPA. Shipping and other industry groups have also objected to conditions that states attach to the VGP pursuant to state authority under the Clean Water Act, providing additional justification for consolidation with the USCG. Several bills have been introduced in recent Congresses to shift responsibility to the USCG. In a narrow vote in April 2018, the U.S. Senate rejected passage of the Vessel Incidental Discharge Act (VIDA) which would have exempted ballast water from regulation under the Clean Water Act. VIDA was opposed by a number of Senators and Representatives from Great Lakes states.

The dispute over the appropriate level of government regulation recently came to a head in Michigan. In 2017, Representative Dan Lauwers introduced H.B. 5095 to address concerns that Michigan's stringent ballast water standards are driving shipping to neighboring Great Lakes states. H.B. 5095 would have required the MDEQ to follow USCG standards when issuing

ballast water permits. Opponents argued this would increase the risk of invasive species introductions by allowing the discharge of untreated ballast water in Michigan. H.B. 5095 passed both Houses but was vetoed by Governor Snyder on June 29, 2018.

Asian Carp

Asian carp were introduced to North America in the early 1960s primarily as a means to control algae growth in aquaculture and wastewater treatment ponds. Some of the fish escaped from the ponds into the Mississippi and Illinois rivers, began rapidly reproducing, and have been migrating north towards the Great Lakes. There are four species of Asian carp that pose a threat to Michigan waters - Grass, Black, Bighead, and Silver. Grass carp have already been found in three of the Great Lakes, including Lake Michigan.

As concerns began to mount over the carp invasion in the 1990s, Congress passed legislation mandating that the U.S. Army Corps of Engineers take action to prevent aquatic invasive species from reaching Lake Michigan. The Corps decided to construct an electric barrier system across the Chicago Sanitary and Ship Canal at Romeoville, Illinois. The Chicago and Sanitary and Ship Canal was built in 1900 to divert Chicago's wastewater away from Lake Michigan into the Mississippi River Basin via the Des Plaines and Illinois Rivers. By reversing the flow of the Chicago River, the city protected its drinking water supplies. But those canals now present the risk that Asian carp and other invasive species can migrate from the Mississippi River to Lake Michigan and beyond.

Preventing invasive carp in the Great Lakes is a priority in Michigan. In 2009, Michigan filed a lawsuit with the U.S. Supreme Court against Illinois and the U.S. Army Corps of Engineers to shut down two locks within the Chicago Area Waterway System. Michigan sought to reopen a 100-year old case limiting Chicago's water diversions through the canal. The Supreme Court declined to hear the case, but efforts to erect additional barriers or close the waterway persist.

Opponents to the physical separation argue that it would be too expensive and would negatively impact shipping interests and raise sanitation challenges. Goods currently being transported by barge would have to be moved by truck or rail, and a portion of Chicago's sewage system would need to be re-engineered and wastewater treatment systems upgraded to meet higher standards for discharge into the Great Lakes.

Michigan is working with a number of regional partners on prevention and monitoring efforts around the Great Lakes. In January 2018, Governor Rick Snyder announced the formation of the Great Lakes Basin Partnership to Block Asian Carp. Through this interstate partnership, member states have committed to helping cover the operational and maintenance costs of Army Corps of Engineers upgrades to the Brandon Road Lock and Dam near Joliet, Illinois to reduce the risk of invasive carp moving through (Michigan, 2017). Upgrades include installing electric barriers, noisemakers, and water jets.

The Transport of Crude Oil in the Region

Along with Section 311 of the Clean Water Act (CWA), the Oil Pollution Act of 1990 (OPA) provides the primary basis for domestic oil spill regulation in the United States. Congress passed the OPA a little more than a year after the disastrous Exxon Valdez oil spill (Oil Pollution Liability and Compensation, 2018). OPA created a comprehensive prevention, response, liability, and compensation regime to deal with vessel- and facility-caused oil pollution to U.S. navigable waters. The CWA provides the framework for civil and criminal enforcement actions by the federal government under the OPA. The OPA requires certain facilities to prepare Facility Response Plans (FRPs), which must be submitted to EPA.

Pipeline

The Pipeline and Hazardous Materials Safety Administration (PHMSA) is responsible for implementing OPA as it applies to onshore oil pipelines. The program has several elements to ensure that pipeline operators can protect the environment from major oil spills. PHMSA's regulations cover design, construction, operation, maintenance, and emergency response efforts of these pipelines. The agency's pipeline safety program aims to protect people and the environment through risk management, regulatory compliance, and Federal-State partnerships. Certain pipeline operators are required to develop Facility Response Plans. The operators of an onshore oil pipeline that could significantly and substantially harm the environment by discharging oil into or on any US waters or adjoining shorelines must submit a response plan to the agency.

In 2010, an oil pipeline, Line 6B, ruptured near Marshall, Michigan spilling approximately 843,000 gallons of diluted bitumen, a heavy form of crude oil, into Tallmadge Creek, causing one of the largest inland area spill in U.S. history (National Oceanic and Atmospheric Administration, 2018a). The spill spread nearly 38 miles down the Kalamazoo River, impacting 1,560 acres (National Oceanic and Atmospheric Administration, 2015). Enbridge Inc., a Canadian company, owns Line 6B. In 2015, the U.S. Department of Justice and the U.S. Environmental Protection Agency announced a settlement with Enbridge to resolve claims stemming from its 2010 oil spills in Marshall, Michigan, and Romeoville, Illinois (U.S. Attorney for the Western District of Michigan, 2016).

Under the settlement, Enbridge agreed to spend \$110 million to improve operations and prevent spills on its pipelines in the Great Lakes region. The settlement includes an extensive set of specific requirements to prevent spills and enhance leak detection capabilities throughout Enbridge's Lakehead pipeline system. The company agreed to pay civil penalties totaling \$62 million for Clean Water Act violations and the settlement resolved Enbridge's liability under the Oil Pollution Act, as the company agreed to pay over \$5.4 million in unreimbursed costs incurred by the government in connection with cleanup of the

Marshall spill, as well as all future removal costs. Enbridge also had to replace almost 300 miles of one of its pipelines (U.S. Attorney for the Western District of Michigan, 2016).

Since the Line 6 spill, Enbridge's Line 5 pipeline, located at the junction of Lake Michigan and Lake Huron, has been under strict scrutiny from non-governmental organizations. Line 5 consists of two 65-year-old pipelines that extend across the Straits of Mackinac's 4.5-mile width at a depth greater than 150 feet. Each day, 23 million gallons of light crude oil and natural gas liquids move through the Line 5 pipeline (Matheny, 2018). Enbridge executives have stated that Line 5 transports 70% of the light crude oil and natural gas liquids that are refined in the Great Lakes region (Council of Great Lakes Industries, 2017).

Public concern regarding Line 5 is heightened due to its age and ecologically sensitive location (Matheny, 2018). In 2017, Michigan Governor Rick Snyder entered into a private agreement with Enbridge that stipulates increased safeguards for Line 5 and requires the completion of a study on pipeline replacement options (Office of Governor Rick Snyder, 2017; Dynamic Risk Assessment Systems, Inc., 2017). Replacement options include installing new pipeline in a tunnel under the straits, installing a new pipeline below the lake bed of the straits using horizontal directional drilling, or creating a trench on the bottom of the Great Lakes and placing a new pipeline in a secondary containment structure or system (Office of Governor Rick Snyder, 2017; Dynamic Risk Assessment Systems, Inc., 2017). The concern intensified on April 1, 2018, when a ship's anchor made three dents in Line 5 (Matheny, 2018). The line has remained in operation, with modifications in pressure by Enbridge (Tower, 2018).

To address Line 5 concerns at the federal level, on June 22, 2016, Congress passed the Protecting Our Infrastructure of Pipelines and Enhancing Safety (PIPES) Act of 2016. The Act of 2016 amends the Pipeline Safety Statute, 49 U.S.C. § 60109, to list the Great Lakes as an unusually sensitive area (USA) (49 U.S.C. § 60109, 2016; Unusually Sensitive Areas, 2001). PIPES places more stringent integrity assessment requirements on Enbridge's Line 5 pipeline due to its depth. The Act includes an additional section titled "Hazardous Liquid Pipeline Facilities." This section requires any underwater hazardous liquid pipeline facility located in a high consequence area with any portion of the facility at depths greater than 150 feet to conduct annual integrity assessments (49 U.S.C. § 60109, 2016; Unusually Sensitive Areas, 2001). Pipeline facility operators are also required to maintain information relating to the facility's operations (Facility Operations Information Standards, 2013). This information includes an emergency response plan, and the operator must determine the "worst case discharge" and produce a response plan that includes procedures and resources in order to respond to a worst case discharge or "substantial threat of such a discharge" (Worst Case Discharge, 2005; General Response Plan Requirements, 2005).

Vessels

Vessels transporting oil in U.S. waters must have Vessel Response Plans pursuant to the OPA (Applicability, 2013). The U.S. Coast Guard reviews these plans and the plans must contain notification information, shipboard spill mitigation procedures, and shore-based response activities (33 C.F.R. § 155.1035, 2015). The plans must contain geographic-specific appendices for each zone in which they will transport oil (33 C.F.R. § 155.1065, 2017). The Coast Guard evaluates the response plans pursuant to its regulations (33 C.F.R. § 155.1035, 2015).

Although there is the transport of light crude oil and finished petroleum across the Great Lakes, there is currently no transport of crude oil over the Great Lakes (Christopherson & Dave, 2014). The Coast Guard has stated that currently there are not adequate response methods and techniques for spills of heavy oils in open bodies of freshwater (Great Lakes Commission, 2015). Any VRP for the transport of heavy crude oil over the Great Lakes would be subject to the Coast Guard's review.

Rail

The Department of Transportation oversees all transportation by rail, usually through sub agencies like the Pipeline and Hazardous Materials Safety Administration (PHMSA) and Federal Railroad Administration (FRA) (U.S. Department of Transportation, 2012). Depending on volume capacity of the rail cars transporting oil, railroads must have either a "basic" response plan or a more "comprehensive" response plan (Oil Spill Prevention and Response Plans, 2013). FRA must approve plans for tank cars that hold more than 1,000 barrels, and the plans must account for a worst-case discharge scenario (Response Plans, 2011). Today, railroads primarily use DOT-111 tank cars, which require only "basic" response plans that are not subject to FRA approval. Thus, there are not comprehensive response plans for most cars carrying crude oil. Rail cars are the only onshore facilities that allow for these "basic" plans. However, there has been political pressure to update this rule, and a new regulation has been proposed.

Water Diversions

Waukesha Diversion

Waukesha, Wisconsin has faced both water quality and quantity issues with its public water supply. Traditionally, the city obtained its water from a deep aquifer using groundwater wells. Due to population growth, the water level in the aquifer is now much lower, in fact hundreds of feet lower, than historic water levels. The lower water levels have increased the amount of radium concentration in the water. In fact, the city is under a court order to solve the radium contamination of its drinking water supply by 2018 (Wisconsin Department of Natural Resources, April 2018).

Located 17 miles west of Lake Michigan, the city of Waukesha is in Waukesha County, which qualifies as a Straddling County under the Compact since part of the county is within the

Great Lakes Basin. Pursuant to the Compact, the city made an application to divert water from the Great Lakes. Specifically, Waukesha sought to divert 10.1 million gallons of water a day (MGD) in order to serve an estimated population of 97,400 by the year 2050. The city claimed that diverting water from the Great Lakes was the only environmentally and economically feasible option to meet its public water supply needs.

After a lengthy review period, the Compact Council approved Waukesha's application in June 2016 with a historic, unanimous vote. However, the Compact Council's approval of the application came with certain conditions. Notably, the Compact Council reduced the amount of water the City could divert to 8.2 MGD, as well as reducing the water distribution area proposed by the City.

Foxconn

Recently, another diversion from Wisconsin has made headlines. In April 2018, the Wisconsin Department of Natural Resources (DNR) approved a request from the City of Racine, a Straddling Community under the Compact, to divert from the Great Lakes 7 MGD. The controversy lies in what the water will be used for, as none of the water will be used by residential customers. Rather, the diversion will benefit one customer- the private company Foxconn.

Foxconn manufactures flat screens, and the state of Wisconsin gave the company a \$4 billion incentive package to locate its facility in Racine. Of the requested 7 MGD, Foxconn will use 5.8 MGD at the plant, with the other 1.2 MGD being used by surrounding facilities. Further, all of the water will not be returned to the Great Lakes, as it is estimated that around 2.7 MGD will be lost to evaporation.

Racine is considered a Straddling Community under the Compact. As discussed above, if the diversion results in a New or Increased Consumptive Use of less than 5 MGD, Regional Review is not required. Since the proposal estimated that only 2.7 MGD will be lost (or "consumed"), only the Wisconsin DNR had to approve the diversion (Wisconsin Department of Natural Resources, June 2018).

Although the DNR approved Racine's request in May 2018, the Midwest Environmental Associates (MEA) filed an administrative petition with the DNR on behalf of four entities asking for a review of the DNR's decision regarding the Racine diversion (Midwest Environmental Advocates, 2018b). The process essentially asks the DNR to reconsider in its decision through an administrative hearing. At the heart of MEA's argument is the assertion that Racine's withdrawal does not meet the public water supply requirement under the Compact since the water will be used by only one industrial customer. Allowing this diversion to go forward, MEA argues, ignores a core provision of the Compact and would create a bad precedent (Wisconsin Department of Natural Resources, June 2018).

In June, the DNR granted MEA's petition, agreeing to a hearing that will consider whether the Racine diversion violates the

public water supply standard (Meyer, 2018). However, the DNR did not agree with MEA that the contested case hearing stayed the approval of Racine’s diversion application while the administrative process moves forward. In response, MEA filed a case in Dane County Circuit Court in July 2018, asking the court to stay DNR’s approval during the administrative appeal (Petition for Judicial Review, 2018). At the time of writing, this case was still pending (Midwest Environmental Advocates, 2018a).

Nestlé Permit

A recent permit application by Nestlé Waters North America, Inc. to the State of Michigan has also received significant attention. As discussed above, under the Compact, states are allowed to regulate bottled water operations as they see fit, as long as the bottled water is leaving the Basin in smaller containers. Pursuant to Michigan law, Nestlé submitted a permit application to increase its groundwater withdrawals at its White Pine Springs well site in the state from 250 gallons per minute (GPM) to 400 GPM. The Michigan Department of Environmental Quality (DEQ) approved the permit, allowing Nestlé to draw up to 400 GPM, which amounts to 576,000 gallons of water a day (Michigan Department of Environmental Quality, 2018).

Under Michigan’s state water withdrawal law, bottled water withdrawals of 200,000 gallons per day or larger require a permit. The state can only approve the permit if it meets the terms of the Compact and does not violate private or public rights, as well as Michigan water law. Once a permit application is received, the state must provide public notice and a public comment period of forty-five days (Mich. Comp. Laws § 324.32723, 2008).

Michigan’s water withdrawal assessment applies to all “large quantity withdrawals,” defined as “withdrawals of over 100,000 gallons of water per day average in any consecutive 30-day period” (Large Quantity Withdrawal, 2008). Before these withdrawals can be approved, it must be determined whether the withdrawal will have an adverse resource impact. The assessment process considers the withdrawal’s location and its potential impacts, such as the effect on fish populations. The water user will enter the initial information into the assessment

model, and for certain withdrawals, the DEQ must complete a site-specific review (Mich. Comp. Laws § 324.32706b, 2008; Mich. Comp. Laws § 324.32706c, 2018).

While the DEQ approved Nestlé’s increased withdrawal request, the DEQ is requiring Nestlé to submit both monitoring and Quality Assurance Project Plans to the DEQ for the department’s approval before Nestlé can increase its water withdrawals (Michigan Department of Environmental Quality, 2018). The plans must include elements contained in the special conditions portion of the permit, including monitoring streamflow, aquatic life and habitat, groundwater levels, and wetlands.

While DEQ was considering the Nestlé permit, it held both a public comment period and a public hearing. A statement released by the DEQ Director revealed that the department received over 80,000 public comments and noted, for transparency purposes, that “the majority of the public comments were in opposition of the permit” (Grether, 2018). The DEQ Director further noted that most of the public comments “related to issues of public policy which are not, and should not be, part of an administrative permit decision” (Grether, 2018). The department’s statements solidify its position that it followed the law as it is written. To do otherwise, the department notes, would be making public policy, which it cannot do as an administrative agency.

However, the Nestlé permit decision has drawn a large amount of criticism (CBS News, 2018). Some critics are focusing on the fact that Nestlé could draw Michigan groundwater essentially for free while others in the state were facing ongoing water issues, such as the lead crisis Flint, while having to pay for water (Cummins, 2018). Due to this controversy, the Michigan Citizens for Water Conservation (MCWC) filed a Petition for Contested Case Hearing with the DEQ under Michigan law, asking the department to reconsider its decision (Michigan Citizens for Water Conservation Petition, 2018). Among its contentions, MCWC challenges the legality of the department’s decision to allow Nestlé to conduct its environmental monitoring after its permit application was approved, and not before the application was submitted. At the time of writing, this administrative process was still on-going (Michigan Citizens for Water Conservation, 2018).

Recommendations

Michigan, like all of the Great Lakes states, face ongoing policy challenges surrounding the use and management of the water resources of the Great Lakes basin. Because the Great Lakes is an international and interstate resource, the policy choices of individual states must be balanced with the management and conservation goals established by regional and national entities. To protect the water resources of the Great Lakes, Michigan policy-makers should:

- › Continue to actively engage in regional partnerships to address water management challenges.
- › Support efforts to harmonize state and federal laws within the region to reduce confusion and burdens on regulated entities and improve regional management.
- › Ensure that companies transporting oil, whether by pipeline, rail, or vessels, adequately plan for and take steps to mitigate environmental and public safety risks.
- › Strive to consider the impact of economic development and other policy decisions on the water resources of the Great Lakes region, including the surface and groundwater of the state of Michigan.

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