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Offshore Wind Development on the Eastern United States Coast and its Impacts on Commercial Fishing

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OFFSHORE WIND DEVELOPMENT ON THE EASTERN UNITED STATES COAST AND ITS IMPACTS ON COMMERCIAL FISHING

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I. INTRODUCTION

Harvesting renewable energy is a growing business. Despite the worst financial crisis in fifty years, clean energy investment worldwide declined only 6.6%.[1] There is opportunity for growth in the clean energy market, and the United States has the ability to participate in that growth. In February 2011, the U.S. Department of Energy (DoE) published a paper titled *A National Offshore Wind Strategy* which details the DoE's plans to encourage the development of offshore wind project, remove market barriers, and reduce the costs associated with such projects.[2] Also in that report, the DoE expanded on the importance of proper utilization of the abundant resource of wind energy and stated that current data indicates that "offshore wind can contribute to the nation's energy mix at significant levels."[3] With the untapped yet abundant wind resources in the United States, utilization of the full theoretical capacity available could provide the United States with a strong, renewable energy source.

Many European countries have already explored the capture of wind energy, with Denmark constructing the first offshore wind facility in 1991.[4] As of 2011, 2946 megawatts of electrical generating capacity have been installed in 45 different windfarms in nine European countries.[5] Between 2009 and 2010, installation of offshore wind turbines increased 51% with the addition of 308 more turbines and ten more offshore wind projects are currently being constructed.[6] While European countries have utilized offshore wind energy, currently there are no wind turbines installed offshore of the United States coasts,

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[1] Pew Charitable Trusts, Who's Winning the Clean Energy Race? (2010),6, *available at* http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Global_warming/G-20%20Report.pdf (last visited July 5, 2011).
[2] U.S. Department of Energy, A National Wind Strategy: Creating an OffshoreWind Energy Industry in the United States (February 2011), *available at* http://www1.eere.energy.gov/windandhydro/pdfs/national_offshore_wind_strategy.pdf (last visited July 5, 2011).
[3] Id. at 5.
[4] Center for American Progress, Clean Energy from America's Oceans: Permitting and Financing Challenges to the U.S. Offshore Wind Industry (June 2011), 1, *available at* http://www.americanprogress.org/issues/2011/06/pdf/offshore_wind.pdf .
[5] European Wind Energy Association (EWEA), http://www.ewea.org/index.php?id=203, (last visited July 5, 2011); *See also*, http://www.americanprogress.org/issues/2011/06/pdf/offshore_wind.pdf, 1, (last visited July 5, 2011).
[6] Id.

but there are many projects currently being proposed.[7] Therefore, the issue is ripe for analyzing the socio-economic impacts of these installations on the commercial fishing industry.

The purpose of this report is to examine current applicable United States laws in the development of offshore wind development and the impact of offshore wind projects on commercial fishermen; the reason being that these projects, due to technological constraints, are typically sited in areas that are relatively shallow (i.e., less than 100' in depth) and closer to shore.[8] These siting characteristics lend, in many cases, to a direct impact on lucrative fishing grounds and hence, a conflict between offshore wind developers and commercial fishermen who rely on the areas in question to fish. The balance between these adverse interests is the main focus of this report. First, this report will examine United States laws governing the construction of offshore wind turbines. Second, this report will examine the procedure and protocols for construction of offshore wind turbines in the European Union to better understand the procedures the United States should consider as it begins to advance offshore wind development.

II. APPLICABLE LAWS FOR OFFSHORE WIND DEVELOPMENT IN THE UNITED STATES

Renewable energy is a relatively new concept in the United States. While European countries have been developing offshore wind farms since 1991, the United States has yet to construct such a facility and as such, the law is not yet developed to deal with the regulation of these installations.[9] The statutory schemes triggered with the construction of offshore wind turbines relate primarily to the regulation of commercial fishing, the development in general of the coastal zone, and the prevention of oil pollution.

[7] Such as Cape Wind, Fishermen's Energy, NRG Bluewater Wind, Lake Erie Energy Development Corporation, DeepC Wind Consortium, and Atlantic Wind Connection, *See supra* note 4 at 3-6.
[8] While all existing offshore wind facilities are in water less than 100 feet in depth, some European companies are developing floating offshore wind turbines designed to operate in deeper water. *See supra* note 4 at 5.
[9] The world's first offshore wind farm was built in 1991 off the coast of Vindeby, Denmark. *See* Megan Higgins, Is Marine Renewable Energy a Viable Industry in the United States? Lessons Learned from the 7th Marine Law Symposium, 14 Roger Williams U. L. Rev. 562, 567 (2009).

A. THE MAGNUSON-STEVENS ACT

The commercial fishing industry is a regulated industry. There are gear, season, and location restrictions for fishing, as well as maximum quotas.[10] The law governing commercial fisheries is primarily federal: the Magnuson-Stevens Fishery Conservation and Management Act (MSA).[11] This Act is administered by NOAA's National Marine Fisheries Service (NMFS) and sets out ten national standards that regional fisheries management councils must follow when promulgating a fishery management plan.[12] These national standards range from preventing overfishing, using the best scientific data available, consideration of fishing communities, and minimizing bycatch.[13] With the passage of the Sustainable Fisheries Act of 1996, an Amendment to the MSA, Congress added National Standard 8 which requires the Secretary of Commerce to minimize adverse economic effects of fishing communities.[14] In doing so, the Secretary is to conduct an Economic Findings analysis and incorporate those findings into the decision making process.

B. THE SUBMERGED LANDS ACT OF 1953

State and federal jurisdiction over submerged lands in the United States is governed by the Submerged Lands Act of 1953. The Submerged Lands Act was enacted in response to the 1947 Supreme Court's ruling in *United States v. California* which held that the State of California did not have ownership of the 3-mile territorial sea and therefore could not lease submerged lands to oil companies to extract oil and gas resources.[15] The Court ruled that the federal government had paramount rights in and

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[10] For up-to-date listings on fishery regulation, as well as links to regional fisheries management, *See* http://www.nmfs.noaa.gov/sfa/sfweb/ (last visited July 5, 2011).
[11] *See* Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§ 1801-1891(d) (2007).
[12] The National Standards set out in the MSA as follows: (1) prevent overfishing and achieve optimum yield for each fishery; (2) use the "best scientific information available"; (3) manage fish stocks as units and coordinate with other Councils to manage stocks within multiple jurisdictions; (4) allocate fishing privileges in a "fair and equitable" manner; (5) efficiently manage fisheries without solely focusing on economic allocation; (6) allow flexibility for future changes that may affect conservation and management; (7) minimize costs and "avoid unnecessary duplication"; (8) consider the needs of fishing communities, encourage community participation, and "minimize adverse economic impacts on such communities"; (9) "to the extent practicable," minimize bycatch and the mortality of unavoidable bycatch; and (10) "to the extent practicable . . . promote the safety of human life at sea." *See* 16 U.S.C. § 1851 (a)(1)-(10) (2007).
[13] Id.
[14] Id.
[15] 332 U.S. 19 (1947).

power over the territorial sea, including full dominion and control of oil and other resources in trust for people of the United States. The Court's decision in *U.S. v. California* generated considerable controversy and was subsequently overturned in 1953 when Congress enacted the Submerged Lands Act. The Submerged Lands Act conveys title and ownership of the lands and natural resources of the 3-mile territorial sea to the states, including the right and power to manage, administer, lease, develop and use such lands and resources.[16] "Natural resources" include oil, gas, and other minerals, and fish, shrimp, oysters, sponges, kelp, and other marine animal and plant life."[17] The Act conveys to the states all lands beneath "navigable waters," including all lands covered by tidal waters up to the mean high tide line seaward to three geographical miles from the state's coast line, or to the international boundary in the Great Lakes. States were also granted ownership rights beyond three geographical miles if so provided in the constitution or laws prior to the time such State became a member of the Union, such as in Texas and Florida.[18]

The Submerged Lands Act also releases all right, title and interest of the federal government to the lands and natural resources within the 3-mile territorial sea to the states, and reaffirms the jurisdiction, power and control of the U.S. beyond state waters.[19] However, within state waters the U.S. retains a navigational servitude for the constitutional purposes of commerce, navigation, national defense and international affairs which is paramount but does not include proprietary rights of ownership interests vested in the states.[20] Thus the Submerged Lands Act recognizes concurrent federal and state jurisdiction over navigable water, submerged lands and the natural resources within those lands and waters.

i. THE NAVIGATIONAL SERVITUDE AND COMMERCE CLAUSE

The ownership interests of states over submerged lands within the 3-mile territorial sea are subject to the federal government's navigational servitude and paramount constitutional rights over commerce, navigation, national defense and international affairs as specifically reserved under the

[16] 43 U.S.C. §1311(a).
[17] 43 U.S.C. §1301(e).
[18] 43 U.S.C.§§ 1301, 1312.
[19] 43 U.S.C. §1302.
[20] 43 U.S.C. §1314(a).

Submerged Lands Act.[21] These federal rights do not include ownership or proprietary interests. But they do include the right of the federal government to regulate commerce with foreign nations and among the states under the Commerce Clause.[22] These federal rights within state waters can affect submerged lands leases in a number of ways.

ii. THE RIVERS AND HARBORS ACT OF 1899

Section 10 of the Rivers and Harbors Act of 1899 exercises the federal navigational servitude by prohibiting the construction of any wharf, pier, breakwater, jetty or other structure, or excavating, filling or modifying the navigable waters of the U.S. without authorization of the U.S. Army Corps of Engineers.[23] These provisions extend federal jurisdiction over the obstruction of tidal waters to the mean high water mark in its natural, unobstructed state, including the right to regulate activities on former tidelands that are no longer navigable because they have been diked and filled.[24] Thus leasing and other activities that obstruct navigation within state waters from the mean high water mark to the seaward limit of state jurisdiction require approval of Corps of Engineers under Section 10 the Rivers and Harbors Act. Necessary permits for structure siting under the RHA may be denied if it is determined that the installation of the proposed structure would pose an overly adverse effect on navigation in the affected waters. In 2005, the Energy Policy Act transferred this permitting authority from ACE to the Secretary of the Interior and the Minerals Management Service was directed to oversee development of the OCS. In 2010, the Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE) and was created for overseeing the safe and environmentally responsible development of energy and mineral resources on the OCS.[25]

iii. THE CLEAN WATER ACT

Federal jurisdiction over submerged lands also extends to non-navigable wetlands adjacent

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[21] 43 U.S.C. §1314(a).
[22] U.S. Constitution, Article I, section 8.
[23] 33 U.S.C. §403.
[24] Leslie Salt Co. v. Froehlke, 578 F. 2d 742 (1978).
[25] Department of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, http://www.boemre.gov/ (last visited July 5, 2011).

to waters that are susceptible to use in interstate commerce, even if not subject to frequent flooding, as well as waters subject to the ebb and flow of the tide under section 404 of the Clean Water Act.[26] Discharges of dredged and fill material into such wetlands requires a permit from the Army Corps of Engineers pursuant to guidelines adopted by the EPA.[27] Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions," including swamps, marshes, bogs and similar areas.[28] Permits are not required for normal farming, ranching or silvaculture activities[29] or for discharges into isolated wetlands used by migratory birds.[30]

C. THE OUTER CONTINENTAL SHELF LANDS ACT

While states control submerged lands within the three miles and beyond three miles where states have extended offshore jurisdiction, the federal government has jurisdiction beyond state waters within the 200-mile Exclusive Economic Zone (EEZ) and continental shelf.[31] This is consistent with international law under the U.N. Law of the Sea which the U.S. has not ratified but recognizes as customary international law. The U.S. also proclaimed jurisdiction and control over "the natural resources of the subsoil and seabed of the continental shelf beneath the high seas contiguous to the coasts of the U.S. and appertaining to the U.S."[32] The continental shelf, as defined under the 1958 Geneva Convention on the Continental Shelf, is the submerged top of the continental platform adjacent to the coast to a depth of 100 fathoms (600 feet) and beyond to the depths of exploitability of the natural resources of the seabed and subsoil, but extending no further than the inner edge of the deep seabed. Federal jurisdiction over submerged lands therefore extends from the seaward boundaries of state waters (3 miles in most cases) to the 200-mile EEZ and continental shelf.

[26] U.S. v. Riverside Bayview Homes, 474 U.S. 121 (1985).
[27] 33 U.S.C. §1344.
[28] 33 C.R.F. §328.3(b).
[29] 33 U.S.C. §1433(f).
[30] Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001).
[31] The 200-mile EEZ was proclaimed by President Ronald Reagan in 1983, Presidential Proclamation 5030 (1983).
[32] Truman Proclamation on the Continental Shelf (1945).

The Submerged Lands Act established state and federal boundaries for offshore waters, but created no mechanism to lease the mineral resources of the EEZ and continental shelf. Consequently, in 1953 Congress enacted the Outer Continental Shelf Lands Act (OCSLA) creating a federal program to lease oil and gas resources seaward of state waters. The OCSLA authorizes the Secretary of the Interior, acting through the Minerals Management Service, to lease tracts of the OCS for oil, gas and mineral exploration and development.[33] The Act establishes four distinct leasing stages: the formulation of a five-year leasing plan; individual lease sales; exploration activities by lessees; and development and production of oil and gas resources. States are authorized to participate in each phase of the process through the submission of comments to the Secretary of the Interior,[34] through the National Environmental Policy Act,[35] and through the federal consistency provisions of the Coastal Zone Management Act (CZMA).[36] Under the CZMA, federal plans of exploration or development and production from areas leased under the OCSLA that affect any land or water uses or natural resource of the coastal zone must be certified by the coastal state to be in compliance with the enforceable policies of the state's approved coastal management plan. The CZMA consistency provisions apply to all federal permits and activities outside of the coastal zone that affect the land and water resources of state coastal zones.[37]

III. EUROPEAN REGULATIONS

Since the 1980's, Europe has been the world leader in wind technology and in 1991, the first offshore wind farm was constructed off the coast of Vindeby, Denmark.[38] In Europe, there are currently thirty-nine (39) wind farms operating more than 830 turbines and generating more than 2,000 megawatts

[33] 43 U.S.C. §§ 1331 *et seq*.
[34] 43 U.S.C. § 1345.
[35] 42 U.S.C. § 4332.
[36] 16 U.S.C. § 1456(c)(3)(B).
[37] 16 U.S.C. §1456(c)(1) and (3)(A).
[38] Benjamin D. Adams, *Wind Power in Appalachia*, 4 Appalachia Nat. Resources L.J. 69, 71 (2010) (describing the development of wind power in Europe and China); Jacqueline S. Rolleri, Note, *Offshore Wind Energy in the United States: Regulations, Recommendations, and Rhode Island*, 15 Roger Williams U. L. Rev. 217, 218 (2010). (Discussing the development of wind energy in the United States).

of electricity.[39] The European Wind Energy Association (EWEA) estimates that wind blowing over less than 5% of the North Sea's surface could supply about 25% of Europe's current energy needs.[40] The leading countries within Europe include Denmark, Sweden, the United Kingdom, the Netherlands, and Germany.[41] The rapid growth of wind technology in Europe is due in large part to the European Union's policies and directives.

In 2001, and later revised in 2009, the European Union adopted a comprehensive legal framework aimed to accelerate administrative and regulatory approval of offshore wind farms.[42] The 2009 Renewable Energy Directive established a legally binding national target of having 20% of the European Union's energy demand from renewable sources by 2020.[43] The directive legally obliges each European Union Member State to ensure that its 2020 target is met and requires the state to create a National Renewable Energy Action Plan that outlines the measures taken to meet the established target.[44] The directive encourages cooperation among member nations and has lead to a streamlined and coordinated approval of new offshore wind farm projects.[45] Although the European Union has set a national standard, it allows each individual member state to establish its own renewable energy developmental goals and policies.[46] For example, the United Kingdom has placed its own target of having 15% of the country's energy consumption produced by renewable sources by 2015.[47] Denmark, the first member state to develop commercial offshore wind farms, and Germany have similar policy procedures and objectives.[48]

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[39] Benjamin Nussdorf, *Emulating Europre: Setting a Course for Offshore Renewable Energy*, 25-SPG Nat. Resources & Env't 29, 29 (2011) (Discussing the difference in wind development in Europe from the United States).
[40] Ed Feo & Josh Ludmir, *Challenges in the Development and Financing of Offshore Wind Energy*, 14 Roger Williams U. L. Rev. 672, 673 (2009) (discussing the potential of wind energy).
[41] Id. at 681.
[42] The 2009 Renewable Energy Directive (Directive 2009/28). http://www.ewea.org/index.php?id=1681 (last visited June 24, 2011).
[43] Strategic Overview of the Wind Energy Sector,The European Wind Energy Association, http://www.ewea.org/index.php?id=195 (last visited June 24, 2011).
[44] The 2009 Renewable Energy Directive (Directive 2009/28). http://www.ewea.org/index.php?id=1681 (last visited June 24, 2011).
[45] Nussdorf, *supra* note 39.
[46] Feo, *supra* note 40, at 681.
[47] Id.
[48] Id.

The increased government backing has motivated more wind farm projects going forward in development and implementation.[49]

However, only a few member states have committed specific offshore areas to wind energy facilities and the organization among member states is lacking.[50] The EWEA is currently working to establish cooperation to encourage further development of offshore wind farms in Europe.[51]

IV. PARALLELS BETWEEN EUROPEAN IMPACTS AND POTENTIAL IMPACTS ON UNITED STATES EAST COAST FISHERMEN

Europe has been the leader in development and implementation in wind energy for at least the past 10 years.[52] There are currently no wind turbines installed in United States waters, resulting in a shortage of critical data on the environmental and siting effects of turbines and on the installation, operation, and maintenance of these turbines.[53] Although the United States can look to studies in Europe of operating wind farms, each presents with its own set of effects due to the unique environment and installation requirements. However, the United States can examine the lessons learned in Europe and apply those lessons to the proposed projects in United States waters.

A. SIMILARITIES OF CONSTRUCTION

Currently, the majority of offshore wind farms are in the European Union, with thirty-nine (39) constructed projects generating more than 2,000 MW of capacity.[54] A heavily studied wind farm is the Horns Rev Offshore Wind Farm located off the coast of Denmark and is one of the wind farms the Minerals Management Service (MMS) relied upon in evaluating placing a wind farm in Nantucket Sound, Massachusetts.[55] Horns Rev consists of about eighty (80) wind turbines placed in a grid pattern spaced about 560m apart.[56] Each wind turbine has a maximum height of 110m to the tip of the upper blade with a

[49] Id. at 682.
[50] Rolleri, *supra* note 38, at 234-35.
[51] Id. at 235.
[52] U.S. Department of Energy, *supra* note 2 at 5.
[53] Id. at iii.
[54] Id. at 5-6.
[55] Cape Wind Energy Project, Final Environmental Impact Statement. U.S. Department of the Interior – Minerals Management Service, § 6.2.4, 6-12 (2009).
[56] Horns Rev Offshore Wind Farm: Environmental Impact Assessment Summary of EIA Report, 4 (2000).

rotor diameter between 66 and 80m.[57] The wind turbines will have a maximum output of 1.8 MW each and a total output of approximate 150 MW.[58] Each turbine is secured in the seabed with a foundation called a monopile (a steel pipe driven into the seabed).[59] A 36 kV cable interconnects the turbines, which are connected to a substation in the northeast corner of the grid.[60] A 150 kV submarine cable connects the substation to the overall grid onshore to transfer the energy produced in the wind farm onshore.[61]

In Nantucket Sound, Massachusetts a developer has proposed to build, operate, and eventually decommission a facility of 130 wind turbines with an average output of 182.6 MW.[62] As with Horns Rev, each turbine will be supported by a monopile foundation system and be arranged in a grid pattern with an alignment of northwest to southeast orientation.[63] However, because of advances in technology, many differences are present between the two wind farms. Each turbine will have a generating capacity of 3.6 MW and be spaced 629m apart because of the use of larger rotor blades.[64] As a result of the larger blades, each turbine will also have a maximum height of 134m.[65] Submarine cables will interconnect the turbines to each other and to the electrical service platform.[66] A 115 kV transmission cable, installed 1.8m below the seafloor, will interconnect the electrical service platform with the onshore grid.[67]

B. POTENTIAL IMPACTS ON UNITED STATES FISHERIES

Concerns relating to the environmental impacts of offshore wind turbines frequently focus on the effects they may have on marine plant and animal life.[68] Because commercial fishermen derive their livelihoods from being able to fish marketable species, the effects of offshore wind farms will have on each particular fishery is extremely important to them. Most of the environmental data of wind farms

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[57] Id.
[58] Id. at 5.
[59] Id.
[60] Id. at 6.
[61] Id. at 4.
[62] Cape Wind Energy Project, *supra* note 55 at § 2.1, 2-1.
[63] Id.
[64] Id. at 2-2.
[65] Id.
[66] Id.
[67] Id.
[68] Bent Ole Gram Mortensen, *Getting Real About Renewables: Economic and Environmental Barriers to Biofuels and Wind Energy*, 2 Envt'l & Energy L. & Pol'y J. 179, 186 (2008) (describing the environmental impacts on plant and marine life).

comes from the extensive monitoring done at two Danish wind farms, Nysted and Horns Rev, since their construction in 2002.[69]

During construction, there was minor disturbances found, but once construction ceased and operations began, the disturbances ceased as well. In both locations, the colonization of the monopile foundation of benthic fauna such as mussels has occurred.[70] Abundance of biomass increased 50 – 150 times at both locations compared to before installation.[71] Although there has been no major increase in fish populations, there has not been a major decrease either.[72] Scientists believe the monopiles may act as artificial reefs, but reef communities can take several years to develop.[73] Scientists expect a higher density and population of species in the coming years.[74] The enriched abundance of invertebrates among the monopiles can be attractants for many fish species, as well as shelter and refuge areas from fishing activities.[75]

The monitoring programs also studied the effects on fish and other marine species that may be caused by the submarine cables. The studies suggested there was not a strong effect, although some species showed either an avoidance or attraction towards the cables.[76]

The wind turbines may present navigation obstacles to be avoided, but would not drastically alter the ability of commercial fishermen to fish in areas near the wind farms.[77] For instance, in the United Kingdom, pursuant to §95 of the Energy Act 2004, a developer may apply to the Secretary of State for a safety exclusion zone around an offshore renewable energy installation.[78] The safety zone may be

[69] Id. at 187.
[70] Cape Wind Energy Project, *supra* note 55 at § 6.2.4, 6-12 (2009).
[71] Mortensen, *supra* note 68, at 187-8.
[72] Id. at 189.
[73] Id. at 188.
[74] Id.
[75] Cape Wind Energy Project, Final Environmental Impact Statement. U.S. Department of the Interior – Minerals Management Service, § 6.2.4, 6-13 (2009).
[76] Mortensen, *supra* note 68, at 188.
[77] Cape Wind Energy Project, *supra* note 55 at § 6.1.10, 6-6 (2009).
[78] Memorandum from Watson, Farley & Williams LLP on Exclusion Zones and Rights of Public Navigation (Apr. 1 2010) (on file at Fishermen's Energy).

imposed either temporarily or permanently, although it is generally used only temporarily during construction.[79]

The conclusions from the monitoring programs at Horns Rev and Nysted indicate minimal environmental impacts over the long term.[80] With regards to fisheries, the programs demonstrated that the wind farms were neutral to fish density, species composition, and abundance, showing neither positive nor negative impacts.[81]

V. MITIGATION CONCERNS FOR IMPACTED FISHERMEN

A. EUROPEAN REGIME

Europe has been experimenting with offshore wind farm technology for the past ten plus years.[82] In general, studies and monitoring programs demonstrate that with proper siting and placement of the turbines, offshore wind farms can be operate without considerable damage to the marine environment or ecosystem.[83] The monitoring program conducted at Horns Rev and Nysted indicate that proper spatial planning is essential to avoid cumulative damaging effects that can have severe implications on the surrounding environment.[84] Due to numerous activities taking place offshore, each regulated by varying agencies and laws, spatial planning is essential to ensuring streamlined cooperation.[85] Planners should be aware that every location is different and presents with its own set of complications. Therefore, over-generalizing results from other wind farms are heavily cautioned against.[86] Early consultation between developers and key industry and agency persons, such as fishermen, is stressed as well.[87]

A recent study conducted by the Collaborative Offshore Wind Research Into the Environment (COWRIE) on the "potential for fishermen to lose access to significant sea areas within offshore wind

[79] Id.
[80] Mortensen, *supra* note 68, at 189.
[81] Cape Wind Energy Project, *supra* note 55 at § 9.2, 9-3 (2009).
[82] U.S. Department of Energy, *supra* note 2 at 5.
[83] Cape Wind Energy Project, *supra* note 55 at § 9.2, 9-2 (2009).
[84] Id.
[85] Oceans of Opportunity: Harnessing Europe's Largest Domestic Energy Resource, European Wind Energy Association, 21 (2009).
[86] Cape Wind Energy Project, *supra* note 55 at § 9.2, 9-2 (2009).
[87] Options and Opportunities for Marine Fisheries Mitigation Associated with Windfarms, Collaborative Offshore Wind Research Into the Environment, iv (2010).

farms" developed twenty-six (26) possible mitigation options for fishermen, developers, regulatory and statutory bodies, and mangers to utilize in current and future wind farm projects.[88] The twenty-six options were placed in four categories: 1) pre-construction options that "focused on reducing or eliminating any negative impacts of wind farms on commercial fishing activities through early and constructive consultation;" 2) options to enhance stocks of species by promoting existing fishing activities within and around wind farm sites; 3) options to support existing fishing activities by increasing access to fisheries; reducing costs, or enhancing marketability; and 4) options to develop new fisheries in the event of loss of access.[89]

B. Applicability of European Mitigation Regimes to Impacted United States Fisheries

In Europe, Environmental Management Systems (EMS) are often used to identify, manage, control, and monitor environmental impacts.[90] However, in a recent Final Environmental Impact Statement (FEIS) prepared by the Minerals Management Service (MMS) for the Cape Wind Project in Nantucket Sound, Massachusetts, the agency decided the requirements of mitigation and monitoring could be met through preparing an environmental impact statement (EIS) and record of decision (ROD - report that sets forth monitoring efforts applicant would commence during construction, operation, and maintenance).[91] An EMS was not required because of the expense and time required to complete both.[92]

Each wind farm is different and will present varying impacts. Therefore a careful and close examination must be made to ensure the fisheries are not impacted. An excellent way to ensure this is to involve local fishermen and agencies in the planning process to make certain a determination of realistic goals is completed.[93]

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[88] Id.
[89] Id.
[90] Cape Wind Energy Project, *supra* note 55 at § 9.0, 9-1 (2009).
[91] Id.
[92] Id.
[93] Options and Opportunities for Marine Fisheries Mitigation Associated with Windfarms, Collaborative Offshore Wind Research Into the Environment, iv (2010).

VI. CONCLUSION

Offshore wind development in the United States promises to be part of the future of the United States. By observing the current laws triggered by development, and respecting that the oceans have multiple users, offshore wind development can be a successful, profitable, venture for the United States. As each proposed offshore wind farm moves forward, examining lessons learned in the European Union will help develop strong development from the beginning. As offshore wind development progresses off the coasts of the United States, the United States will hopefully serve as a model to other countries seeking to harvest renewable wind energy.