

Proposed Rulemaking to Revise Regulations Governing Take of Migratory Birds

Regulatory Impact Analysis

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1 Introduction

The U.S. Fish and Wildlife Service (Service) proposes to publish a regulation in 50 CFR part 10 that defines the scope of the Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) (MBTA) to exclude incidental take. The Service prepared a final Environmental Impact Statement (EIS) following the Council of Environmental Quality regulations, which implement the National Environmental Policy Act (NEPA). This Regulatory Impact Analysis supports the Environmental Impact Statement (EIS) and analyzes the economic impacts of three alternatives: *No Action Alternative* – Existing legal interpretation that MBTA excludes incidental take remains in place unchanged; *Alternative A*, the preferred alternative - Promulgate regulations that define the scope of the MBTA to exclude incidental take; and *Alternative B* – Promulgate regulations that define the scope of the MBTA to include incidental take. For additional supporting information of the regulation, please refer to the final EIS.

Executive Orders 12866 Regulatory Planning and Review (U.S. Office of Management and Budget 1993) and 13563 Improving Regulation and Regulatory Review and the OMB Circular A-4 (U.S. Office of Management and Budget, September 17, 2003), identify guidelines or “best practices” for the economic analysis of Federal regulations. With respect to the rule under consideration, an analysis that comports with Circular A-4 would include a full description and estimation of the economic benefits and costs associated with implementation of the rule. However, with specific exceptions, quantitative data are not available regarding the effect on entities most likely impacted by the rule. The impacts to those entities most likely affected by the rule are addressed qualitatively to the extent information is available to do so. Those entities include members of the public, Federal, State, and local agencies, and businesses such as construction companies for residential, industrial, and commercial developments; timber companies; mining operations; oil and gas extraction; and wind- and solar-energy generation. This document also addresses requirements under Executive Order 13771, entitled, “Reducing Regulation and Controlling Regulatory Costs.”

The MBTA was enacted in 1918 to help fulfill the United States’ obligations under the 1916 “Convention between the United States and Great Britain for the protection of Migratory Birds,” 39 Stat. 1702 (Aug. 16, 1916) (ratified Dec. 7, 1916) (Migratory Bird Treaty). Under the MBTA, it is “unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or egg of any such bird” unless specifically authorized by the Secretary of the Interior (acting through the U.S. Fish and Wildlife Service).

On December 22, 2017, the Principal Deputy Solicitor of the Department of the Interior, exercising the authority of the Solicitor pursuant to Secretary’s Order 3345, issued a legal opinion, M-37050, “The Migratory Bird Treaty Act Does Not Prohibit Incidental Take” (M-37050 or M-Opinion). The M-Opinion concluded that the MBTA’s prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to actions directed at

migratory birds, their nests, or their eggs. This opinion marked a change from an earlier Solicitor's Opinion, M-37041, "Incidental Take Prohibited Under the Migratory Bird Treaty Act," and prior agency practice. The Service proposed to adopt the Solicitor's interpretation via promulgation of a regulation, clarifying that the MBTA's prohibitions apply only to actions directed at migratory birds, and analyzed reasonable alternatives to that proposal in a draft Environmental Impact Statement (EIS).

After issuance of the proposed rule and draft EIS, a Federal district court vacated M-Opinion 37050. *See Natural Resources Defense Council v. U.S. Dep't of the Interior*, 2020 WL 4605235 (S.D.N.Y. Aug. 11, 2020). The Service respectfully disagrees with the district court's holding that the plain language of the MBTA prohibits incidental take. The court's vacatur of the M-Opinion does not directly affect this rulemaking process and effectively underscores the need to codify the official interpretation of the MBTA's application to incidental take. Therefore, the Service has continued to develop the proposal, including finalizing the EIS.

2. Overview

The affected environment, or existing condition, provides a baseline for the analysis of alternatives. The impact analysis that accompanied the proposed rule considered two baselines: the status quo prior to issuance of the M-37050 opinion in 2017 (the pre-M-opinion baseline) and following issuance of the M-37050 opinion (the post-M-opinion baseline). OMB Circular A-4 permits consideration of incremental effects relative to multiple baselines when appropriate. Both baselines remain relevant for analyzing the incremental effects expected to result from finalizing this rulemaking. In particular, the incremental effects on business from codifying the M-37050 opinion relative to the post-M-opinion baseline are expected to be minimal, provided that M-37050 remains in effect. In the event that M-37050 is no longer operative, codifying this change in MBTA scope would prevent businesses from incurring economically significant costs associated with bird mitigation measures. These costs would be required for compliance with a MBTA that criminalizes incidental take. The Service, however, only uses the pre-M-opinion baseline here due to 1) the short, 3-year, time interval from the post-M-opinion to current time; 2) the concomitant lack of data available for this short time period; and 3) the likely similar results between the two baselines. The geographic scope applicable to all alternatives in this document is the entire United States and its territories. The economic analysis focuses on the effects of this proposal and alternatives on ecosystem services and socioeconomic factors. Other resources are analyzed in the final EIS.

The following analyses provide an indication of the costs (disbenefits arising from the loss of value to society and ecosystems provided by birds) and benefits (cost savings to industry/businesses) that might result from finalizing this rulemaking. However, multiple uncertainties prevent a definitive benefit-cost analysis. As such, monetized estimates are presented for illustrative purposes. Given uncertainty about the adoption rate of bird mitigation practices and future decision-making by individual entities, the following analyses do not include societal-level cost-savings estimates. In the few instances where nationwide estimates are discussed, these numbers are presented illustratively and should not be interpreted as estimates of anticipated impacts. Likewise, there is considerable uncertainty surrounding estimation of the disbenefits that might result from this rulemaking. Societal benefit values are difficult to

estimate with certainty, and the Service lacks information on how these values might change following marginal changes in bird populations. Despite the fact that M-37050 has been in place for three years, the Service also lacks information on incremental costs and benefits that have already transpired relative to the pre-M-opinion baseline.

2.1 Ecosystem Services and Socioeconomics

Ecosystem services provided by migratory birds support human survival and quality of life (e.g., pest control, recreation) and, in several cases, are a source of economic value to humans (Millennium Ecosystem Assessment 2005). Ecosystem services that are a benefit to humans are derived from the attributes of migratory birds (e.g., diversity, abundance, distribution) and the myriad ecological processes of which they are a part (e.g., complex food webs, nutrient cycling). There are direct ecosystem services clearly linked to human benefits and indirect ecosystem services of which migratory birds play a role but for which humans do not definitively value their role.

Below are several examples in which migratory birds provide ecosystem services to humans.

Cultural Uses—Birds in general have a high level of importance across many cultures (Kresch 2011). Among the important cultural uses for migratory birds in the United States are the use of feathers as sources of power and for adornment, and the use of bird bones for making beads (DeMeo 1995; Hill 2016).

Valuing cultural benefits in monetary terms is problematic and may not accurately reflect community values (Burgess et al. 1988; Clark et al. 2000; Ervin et al. 2014). Accordingly, this analysis does not assess the economic value of the cultural benefits birds provide. However, the evidence of the significance these benefits have for native communities is suggested by the policies and practices of the Department of the Interior, which issued the Morton policy in 1975, recognizing the cultural importance of bird feathers to native Tribes (Morton 1975). The Morton policy created mechanisms for providing federally recognized Tribes access to feathers from birds protected by the Endangered Species Act (ESA) and the MBTA. A Department of Justice Memorandum subsequently affirmed the Morton policy and the cultural importance of federally protected birds to federally-recognized Tribes (USAG 2012). The memorandum also summarizes the ongoing significance of birds, and especially eagles, to native Tribes:

“The Department of Justice recognizes that many Indian Tribes and tribal members use, and traditionally have used, federally protected birds, bird feathers, or other bird parts for their tribal cultural and religious expression. Indeed, the eagle plays a unique and important role in the religious and cultural life of many Indian Tribes. And in light of the important government-to-government relationship that the United States has with federally recognized Tribes, the United States has a strong interest in accommodating the interests of these Tribes by protecting the ability of their members to meaningfully practice their religions and preserve their cultures.”

Food Provisioning—The hunting of migratory birds provides food for human populations in many parts that have relied on the return of migratory waterfowl to supplement their diets. The

return of migratory waterfowl in the United States is particularly important for indigenous populations in northern climes (Green and Elmberg 2014). Historically and presently, the spring return of waterfowl is part of the cultural heritage of indigenous peoples in Alaska, with celebrations centered around waterfowl harvest.

Recreation (bird watching, hunting)—The recreational value provided by migratory birds is most clearly captured by the time and money that people invest in bird watching and hunting. These two activities provide considerable quality-of-life benefits for those who pursue them (Carver 2013). The 2016 National Survey of Fishing, Hunting, and Wildlife Associated Recreation Report estimated there were 2.4 million migratory bird hunters in the United States who accounted for 16 million migratory bird-hunting days and spent an estimated \$2.3 billion on trips and equipment (U.S. Department of the Interior et al. 2016). In that same year, there were an estimated 45 million bird watchers over the age of 16 in the United States, which is about 18 percent of the population (Carver 2019). These bird watchers spent an estimated \$10.3 billion on trips associated with bird-watching activities (Carver 2019). These numbers do not include the more than \$1 billion that has been generated since 1934 through sales to the public of Migratory Bird Hunting and Conservation Stamps.

In addition to trip expenditures, it is estimated that equipment-related expenditures in 2016 totaled approximately \$29 billion (Carver 2019). The total combined expenditures was approximately \$39 billion in 2016 (Carver 2019). The report estimates these expenditures total approximately \$96 billion in direct, indirect, and induced effects on the economy (Carver 2019). Direct effects are the initial impact of the expenditure (e.g. the purchase of goods and services, totaling approximately \$39 billion as described above), while indirect and induced effects total \$57 billion. Indirect effects are the secondary impacts of the expenditure (e.g. the purchase of the binoculars by the retailer from the manufacturer), and the combination of direct and indirect effects lead to induced effects, where, for example, expenditures provide the employees of retailers and manufacturers income that is spent on other goods (Carver 2019). Bird watching activities are estimated to have produced 782,000 jobs that provided an employment income of \$35 billion. Finally, the report estimates that bird watching activities generated over \$16 billion in state and federal taxes (Carver 2019). Additionally, 57 million people in the country engage in backyard bird-feeding, spending over \$4 billion annually on bird food (Dayer et al 2019) and an unknown amount on related goods such as field guides, bird feeders, and optical equipment.

Pest Control—Birds provide pest control primarily of insects, but also to a lesser extent of rodents and small mammals (Whelan et al. 2015). Over 50 percent of bird species eat primarily insects, while nearly 75 percent eat insects at least occasionally (Wenny et al. 2011). The reduction of insect pests by birds has been shown to increase fitness, population size, and growth rate for the plants that were being consumed by pests, specifically increasing crop yields for food or fiber. This increase in production can directly increase profits. Where birds provide pest control there is less need for pesticide use, which provides both potential cost savings for the agricultural producer as well as health benefits for society and the environment as a whole. Illustrative numbers for assessing the economic benefit from pest management were provided by coffee growers in Jamaica. Using experiments where birds were intentionally excluded from an area, researchers determined that having birds on site increased yields and improved production values by \$75 per hectare on high-elevation farms and up to \$310 on mid-elevation farms (approximately 12% of crop value for mid-elevation farms), when the per capita gross national

income was only \$3400 (Kellermann et al. 2008 and Johnson et al. 2010). Another example is control of the spruce budworm (*Choristoneura* sp.) by woodpeckers. The budworm is projected to cause \$1 billion annually in lost harvest, but studies have shown that woodpeckers are effective in noticeably curbing these losses (Wenny et al. 2011; Whelan et al. 2015). Quantified estimates of the economic benefits of pest control provided by birds across all agricultural and forestry sectors are not available at this time but may be significant. Some of these benefits may be reduced by bird species that depredate on agricultural products. These benefits were recognized by the authors of the 1916 Migratory Bird Treaty with Great Britain on behalf of Canada, and the MBTA, which included insectivorous birds as protected bird species because of their benefits to agriculture.

Seed Dispersal/Pollination—As with pest regulation, there are no available studies that have quantified the total value of seed dispersal by migratory birds. Approximately 33 percent of bird species disperse seeds, and the literature suggests that birds disperse seeds for over 80,000 species of seed-producing plants (Whelan et al. 2015). In addition, birds typically provide pollination for 5 percent of a region’s flora and up to 10 percent on islands (Whelan et al. 2008). This contribution to primary productivity is considerable. The ripple effect from this contribution potentially touches nearly every ecosystem service, including climate regulation, oxygen production, food production, erosion control, water-quantity control, air-quality regulation, and many others (Green et al. 2016).

A case study that provides a good example of the value that seed dispersal can provide is the scatter-hoarding by the Clark’s nutcracker (*Nucifraga columbiana*) of whitebark pine seeds (*Pinus albicaulis*). Whitebark pine is in severe decline, but Clark’s nutcrackers are estimated to benefit the recovery efforts of the U.S. Forest Service by about \$800 to \$1,000 per acre. That equates to over \$11 billion in ecosystem service value across the entirety of the whitebark pine range from a single bird species (Wenny et al. 2011).

Scavenging/Disease regulation—Vultures are the best-known bird scavenger, but many other bird species also fill this important role of removing carrion that can otherwise lead to the spread of disease. Although few studies quantify this benefit, there are examples in the literature of the negative consequences of losing scavenger populations. For example, the decline of the griffon vulture (*Gyps fulvus*) in South Asia led to an increase in rodent and feral dog populations, which in turn led to increases in rabies outbreaks. The estimated cost from the population crash of the vultures was \$34 billion from 1993 to 2006 (Markandya et al. 2008; Wenny et al. 2011). Quantified estimates of the economic benefits of avian scavengers across the U.S. are not available at this time.

Insectivorous birds, mentioned earlier, can also help limit the spread of mosquito-borne diseases that affect humans, such as Eastern equine encephalitis and the Zika virus. This natural source of insect control can also have the benefit of reducing the need to use pesticides in the environment.

Nutrient Cycling—Nutrient cycling is the transfer of energy and matter among living organisms and non-living components of the environment. Coastal, colony nesting birds are notably effective at nutrient cycling from the resultant levels of guano by the birds, but birds contribute to nutrient cycling in all habitats (Whelan et al. 2015). Guano has historically been much valued as a source of fertilizer. Modern fertilizers, which were made possible in the early 1900s by the

invention of a method for synthesizing nitrogen from air, have reduced the demand for guano. However, there is still a market for guano, particularly for organic farming (Office for Science & Society 2013). Undisturbed, naturally occurring guano is a source of nutrients for primary production in local ecosystems.

2.2 Migratory Bird/Human Conflicts

Migratory birds can produce negative social or economic outcomes, such as their role in the spreading of disease or agricultural damage, or causing damage to infrastructure. For example, certain flocking species can cause irreparable harm to agricultural crops. Collisions between vehicles and birds affect tens of millions of birds every year (Loss et al. 2014) while also damaging vehicles and sometimes injuring or even killing vehicle occupants. There is uncertainty and disagreement about the role and extent of migratory birds in producing many of these detrimental impacts. The extent of some of the more prominent detrimental impacts is discussed, and overall estimates of the economic impacts are included where available.

Crop Consumption—Birds consume crops; however, surveys and anecdotal estimates of crop damage from birds tend to overestimate the extent of damage that occurs based on a study conducted in California (Whelan et al. 2015, Gebhardt et al. 2011). One study of survey estimates for loss of corn crop in Quebec due to bird activities determined that the surveys overestimated the actual crop loss from birds by over 1,000 times (Weatherhead et al. 1982, Whelan et al. 2015). Nonetheless, the economic impacts of crop loss from birds is an ongoing concern, particularly for fruit crops. A 2013 study suggests that Michigan fruit farmers lose \$38 million annually to bird-induced crop damage (USDA 2014). Surveyed fruit crop farmers across 5 States who grow 4 different fruit crops and determined that bird damage to crops ranged from \$104-7267 per hectare with an estimated \$189 million in damage across the 5 States and 4 fruit crops (Anderson et al. 2013).

Impacts on Aquaculture—The aquaculture industry estimates that the impacts from migratory birds costs the industry approximately \$25 million annually (Craig et al. 2015). These costs are associated with lost product due to bird predation, loss of feed, and the management and hazing costs to protect from bird predation (Craig et al. 2015).

Impacts on Aviation—Collisions between birds and aircraft are a major concern. From 1990 to 2011, along with the increase in airline traffic and incident reporting, aviation strikes with wildlife increased five-fold, from 1,804 in 1990 to 10,083 in 2011, with 97.1% of strikes caused by birds, though from 2000 to 2011 there was a 29% decrease in damaging strikes from wildlife (Federal Aviation Administration and USDA 2012). As a result, public and private airports and airfields incur costs every year associated with damage from collisions with birds and the costs of wildlife hazard management. While difficult to compile the worldwide annual costs associated with hazards wildlife pose to aviation, it is estimated to exceed \$1.28 billion (Allan and Oroz 2001).

Spreading Disease—Birds have been implicated in some instances as being a source for the spread of disease; for example, the H5N1 virus, commonly referred to as the avian flu. However, this potential detrimental impact is poorly understood, and may often be driven by non-natural

conditions and human influence, such as unsanitary cohabitation with birds that can lead to zoonosis, the transfer of infectious disease from animals to humans (Whelan et al. 2015).

2.3 Best Practices

Through partnerships and collaboration, the Service, industry groups, non-government organizations, States, Tribes, and other Federal agencies have developed many best practices (also known as best management practices, conservation measures, beneficial practices, and mitigation measures) that are aimed at avoiding and minimizing incidental take of birds. Each set of practices (see Appendix A of the final EIS) has targeted particular hazards and the stressors resulting from those hazards, such as those included in the final EIS (Table 3.2 Annual Mortality Estimates for Stressors and Hazards Affecting Migratory Birds). Entities that follow these guidelines and other technical assistance by the Service generally engage in the following types of activities, depending on the industry:

- Consulting with Federal and/or State natural resource agencies for technical assistance
- Conducting baseline bird and habitat surveys
- Conducting risk assessments for impacts to migratory birds
- Conducting ongoing or periodic monitoring of migratory birds
- Siting and micro-siting (within project) of projects and infrastructure to reduce risk to birds
- Deploying equipment and other infrastructure to reduce risk of taking birds, such as:
 - changes in lighting
 - installing mono-pole communications towers instead of using guy wires
 - netting of oil-retention ponds to prevent bird entrapment
 - retrofitting power poles to reduce the risk of large bird electrocutions
 - installing nesting structures to attract birds away from infrastructure
- Implementing operational changes to reduce risk of taking birds, such as the following:
 - scheduling vegetation removal, trimming, and grading of vegetated areas outside of the peak bird-breeding season
 - curtailing individual wind turbine operations under certain conditions
- Developing and implementing systems to detect and report take of birds
- Creating hotlines for the public, agencies, and employees to report bird interactions with infrastructure like power lines

Effective mitigation measures have not been identified for all activities, and not all mitigation measures have been researched sufficiently to accurately determine their effectiveness. For some industries where studies have been completed, mitigation measures have proven substantially effective. Communication towers, for example, have been shown to reduce mortality by about 70 percent by changing to flashing lights and removing guy wires (Gehring et

al. 2011). For oil pits, bird mortality can be virtually eliminated if netting is installed and maintained (Trail 2006).

The Service does not have comprehensive estimates of the costs of implementing beneficial practices. Table 1 compiles examples of best management practices and their estimated costs. Costs vary widely, from simple, low-cost practices like avoiding active nests during vegetation-clearing activities, to practices that have start-up costs but save operators money over the long-term (e.g., installation of blinking lights on communication towers), to more expensive practices like retrofitting power poles, which can cost thousands of dollars, but also have significant long-term benefits, such as preventing fires and local blackouts. There are also beneficial practices whose primary benefit to the industry is to reduce incidental take of migratory birds with no known financial benefit. One example is feathering wind-turbine blades during periods of peak bird migration, which reduces the risk to birds colliding with the turbine blades but also the electrical output and economic gain for the wind energy company. The following figures are presented for illustrative purposes based on available data and may not represent average or median estimates. Given that entities may incur best management costs for reasons other than MBTA compliance, the actual cost that can be attributed to the MBTA may be lower than noted in these figures (see, for example, the discussion of petroleum industry wastewater systems after Table 1).

TABLE 1 – BEST MANAGEMENT PRACTICES COSTS BY INDUSTRY

NAICS Industry	Example of Bird Mitigation Measure	Estimated Cost	Why data are not extrapolated to entire industry or small businesses
Finfish Fishing ^{1,2} (NAICS 11411)	Changes in design of longline fishing hooks, change in offal management practices, flagging or streamers on fishing lines	<ul style="list-style-type: none"> • Costs are per vessel per year • \$1,400 for thawed blue-dyed bait • \$150 for strategic offal discards • \$4,600 for Tori line • \$4,000 one-time cost for underwater setting chute • \$4,000 initial and \$50 annual for side setting 	<ul style="list-style-type: none"> • No data available on fleet size • No data available on how many measures are employed on each vessel
Crude Petroleum and Natural Gas Extraction ^{1,3} NAICS (211111)	<ul style="list-style-type: none"> • Netting of oil pits and ponds • Closed wastewater systems 	<ul style="list-style-type: none"> • \$130,680 to \$174,240 per acre to net ponds • Most netted pits are ¼ to ½ acre • Cost not available for wastewater systems 	<ul style="list-style-type: none"> • Infeasible to net pits larger than 1 acre due to sagging • Size distribution of oil pits is unknown • Average number of pits per business is unknown • Closed wastewater systems typically used for reasons other

NAICS Industry	Example of Bird Mitigation Measure	Estimated Cost	Why data are not extrapolated to entire industry or small businesses
			<p>than bird mortality mitigation</p> <ul style="list-style-type: none"> Percentage of active wells that net oil pits or use closed wastewater systems is unknown
<p>Drilling Oil and Gas Wells^{1,3,4,5} (NAICS 213111)</p>	<ul style="list-style-type: none"> Netting of oil pits and ponds Closed loop drilling fluid systems 	<ul style="list-style-type: none"> \$130,680 to \$174,240 per acre to net ponds Cost not available for closed loop drilling fluid systems, but may be a net cost savings in arid areas with water conservation requirements 	<ul style="list-style-type: none"> Infeasible to net pits larger than 1 acre due to sagging Size distribution of oil pits is unknown Average number of pits per business is unknown Closed loop drilling fluid systems typically used for reasons other than bird mitigation High variability in number of wells drilled per year (21,200 in 2019)
<p>Solar Electric Power Generation¹ (NAICS 221114)</p>	<p>Pre- and post-construction bird surveys</p>	<p>No public comments received to estimate costs</p>	<p>New projects can vary from 100 to 5000 acres in size, and mortality survey costs may not scale linearly</p>
<p>Wind Electric Power Generation^{1,6,7,8} (NAICS 221115)</p>	<ul style="list-style-type: none"> Pre-construction adjustment of turbine locations to minimize bird mortality during operations Pre- and post-construction bird surveys Retrofit power poles to minimize eagle mortality 	<ul style="list-style-type: none"> Cost not available for adjustment of turbine construction locations For entities conducting surveys as part of an incidental take permit under MBTA, Endangered Species Act (e.g. for bats) or Bald and Golden Eagle Protection Act, \$100,000 to \$500,000 per facility per year for pre-construction site use and post-construction bird mortality surveys 	<ul style="list-style-type: none"> Data not available for adjustment of turbine construction locations High variability in survey costs and high variability in need to conduct surveys High variability in cost and need to retrofit power poles

NAICS Industry	Example of Bird Mitigation Measure	Estimated Cost	Why data are not extrapolated to entire industry or small businesses
		<ul style="list-style-type: none"> • \$7500 per power pole with high variability of cost • Annual nationwide labor cost to implement wind energy guidelines: \$17.6M • Annual nationwide non-labor cost to implement wind energy guidelines: \$36.9M 	
Electric Power Distribution ⁸ (NAICS 221122)	Retrofit power poles to minimize eagle mortality	\$7500 per power pole with high variability of cost	High variability in cost and need to retrofit power poles
Wireless Telecommunications Carriers (except Satellite) ¹ (NAICS 517312)	<ul style="list-style-type: none"> • Extinguish non-flashing lights on towers taller than 350' • Retrofit towers shorter than 350' with LED flashing lights 	<ul style="list-style-type: none"> • Industry saves hundreds of dollars per year in electricity costs by extinguishing lights • Retrofitting with LED lights requires initial cost outlay, which is recouped over time due to lower energy costs and reduced maintenance 	Data not available for number of operators who have implemented these practices

Sources: ¹FWS personnel, ²NOAA Revised Seabird Regulations Amendment, ³eccnetting.com, ⁴statista.com, ⁵aerion.com, ⁶FWS Wind Energy Guidelines, ⁷FWS Public Records Act data, ⁸FWS Eagle Conservation Plan Guidance.

The adoption rate of bird best management practices by particular industries is not known, which prevents an accurate estimation of the societal cost savings from this action, even in cases where additional data may allow for order of magnitude estimates. For example, there are over 980,000 active oil and gas producing wells in the United States (US EIA 2019). If all of these operations spend roughly \$1,000 per year on bird mitigation measures, MBTA compliance would be economically significant, even before taking into account M-37050 and/or this rulemaking. Table 1 suggests that each of these entities might spend more than 100 times this amount for netting alone. The costs savings associated with this rule relative to the pre-M-opinion baseline could, therefore, amount to billions of dollars. The actual cost savings may be lower given that some States (including Alaska and Louisiana) are not known to have requirements for netting (USFWS 2009) and given that many wells have on-site tank batteries, while fluids from some wells flow directly into pipelines, meaning they do not have open pits

which might utilize netting. There is additional uncertainty in that a percentage of the oil and gas operations employ closed wastewater systems, as noted in Table 1, and others might, absent M-37050 or this rule, choose to risk enforcement action rather than incur these costs. However, closed wastewater systems are also employed for reasons unrelated to migratory birds, including State wastewater disposal regulations, costs of soil remediation associated with pollution resulting from pits, or the ability to store and reuse produced water during hydraulic fracturing (fracking) operations to reduce costs. In some cases, operators have switched to drilling wells with closed loop systems because it is less costly (Earthworks 2020).

Prior to December 2017, the government viewed any action that directly and foreseeably resulted in the death of a migratory bird as criminal conduct. Several courts adopted judicial limits to this potentially sweeping authority, including requiring evidence that the activity proximately caused the take. Except for very specific circumstances, the Service does not have a permitting or authorization program to allow incidental take of birds. Instead, the Service relied on enforcement discretion in determining when to pursue alleged incidental take violations. Under the prior interpretation, the Service’s Office of Law Enforcement investigated hundreds of activities or hazards that incidentally killed birds. Most of these investigations did not result in a formal enforcement action.

Between 2010 and 2018, the majority of cases involving incidental take of migratory birds were brought against electrical or oil and gas businesses (about 47 cases annually or 81 percent of the total annual incidental take cases). About 4 percent of average annual incidental take cases were brought against wind-energy companies.

Table 2. Average Annual Number of Incidental Take Cases (2010-2018)

Industry	Average Number of Cases Per Year
Electric Distribution and Transmission	30.8
Oil and Gas	15.6
Other activities*	8.5
Wind Energy	2.4
Total	57.3

* “Other” includes communication towers, chemical spills, bridgework, artificial lighting, and solar-energy development.

Source: U.S. Fish and Wildlife Service, 2018a

Over this 9-year period, criminal fines and civil penalties associated with incidental take cases totaled about \$105.8 million¹ (Table 3). The cases noted in Table 2 also included other

¹ In the context of a benefit-cost analysis, fines or penalties are treated as a transfer payment and not a benefit or cost.

adjudications and forfeited collateral, presented in Table 3. No cases have been brought and no fines have been levied since the adoption of M-Opinion 37050 in 2017 (U.S. Fish and Wildlife Service, 2020).

Table 3. Total Migratory Bird Treaty Act Collections and Other Adjudications, 2010-2018

Source	Fines/Collections (millions)
Migratory Bird Treaty Act Collections ^a	\$105.8
Other Adjudications ^b	\$73.0
9-year Total	\$178.8

^aSource: U.S. Fish and Wildlife Service, 2019. Total amount includes a \$100 million fine resulting from a single misdemeanor count of violating the MBTA associated with Deepwater Horizon.

^b Other adjudications are costs associated with corrective actions to reduce or eliminate bird take. Source: U.S. Fish and Wildlife Service, 2018.

The Service has never directly regulated the use of best practices and technologies under the MBTA and there are no data currently available to determine the extent of their use. Other State or Federal regulations also affect construction and operational considerations that interact with birds. For example, the Federal Aviation Administration approved new lighting standards that require flashing lighting on most communication towers greater than 350 feet above ground level. Additionally, 13 States have regulations governing netting of oil pits to varying extent (see p13, USFWS 2009). None of the alternatives affect compliance with the ESA, the Bald and Golden Eagle Protection Act, or State regulations. Therefore, projects that comply with these statutes through mitigation or avoidance measures will often benefit migratory birds as well, though the use of mitigation or avoidance measures does not absolve individuals or companies of liability under the Service’s pre-2017 interpretation of the MBTA. Federal agencies are required to evaluate their impacts to the environment under NEPA. NEPA compliance requires federal entities to identify impacts to the environment affected by a proposal, including impacts to migratory birds if they are likely to occur. NEPA also requires federal entities to assess potential mitigation of unavoidable adverse environmental impacts, which may include analysis of project design or mitigation measures that reduce potential impacts to migratory birds.

2.4 Summary of Current Benefits and Costs Independent of Rulemaking

Migratory birds provide tremendous value to society and ecosystems. Pest control, seed dispersal, recreation opportunity, nutrient cycling, and all the other services migratory birds provide are being produced wherever migratory birds are located. The socioeconomic value provided by migratory birds is in the billions of dollars. The value from trip and equipment expenditures associated with bird watching alone totals approximately \$96 billion annually. In addition, birding expenditures support over 782,000 jobs, resulting in over \$35 billion of annual employment income (Carver 2019). However, there are insufficient data to derive a total value for most of the direct benefits. Further, many of the benefits provided by migratory birds come from a contribution to the ecological processes that drive ecosystem-service production. Although these contributions have not been valued here, the role of birds in fostering primary productivity and the benefits that accrue from that are clearly considerable. Further, migratory

birds provide many cultural, psychological, and aesthetic benefits for which economic value is an inadequate measure.

As noted in Table 1, protecting bird populations in order to maintain their value to society and ecosystems comes at a cost to industry activities that may cause unintentional mortality. Some of these costs could total billions of dollars annually, as noted with oil and gas wastewater ponds. According to the Bureau of Economic Analysis, utilities contributed an average of nearly \$483.9 billion to the U.S. gross domestic product per quarter over the first three quarters of 2020. The oil and gas industry contributed on average \$239.3 billion to the U.S. gross domestic product per quarter over the first three quarters of 2020. These numbers likely do not account for the additional societal benefits of industry activity, such as electricity transmission to private homes and businesses or the benefits associated with new and refurbished bridges for the movement of goods and people. Given the uncertainty about mitigation measure adoption rates, both pre- and post-M-37050, it is not possible to calculate the cost savings for incremental best management practices that have resulted from the 2017 M-37050 change or that will accrue into the future from this rulemaking. The costs presented here instead provide vignettes of the compliance burden that industries could face absent this rule.

2.5 Environmental Consequences

Executive Orders 12866 Regulatory Planning and Review (U.S. Office of Management and Budget 1993) and 13563 Improving Regulation and Regulatory Review and the OMB Circular A-4 (U.S. Office of Management and Budget, September 17, 2003), identify guidelines or “best practices” for the economic analysis of Federal regulations. With respect to the proposed rule under consideration, an analysis that comports with Circular A-4 would include a full description and estimation of the economic benefits and costs associated with implementation of the proposed rule. However, with specific exceptions, quantitative data on the economic effects to the entities most likely affected by the proposed rule are not generally available. The impacts to those entities most likely affected by the proposed rule are addressed qualitatively to the extent information is available to do so. Those entities include members of the public, Federal, State, Tribal, and local agencies, and businesses such as those involved in construction for residential, industrial, and commercial developments; timber harvesting; mining operations; oil and gas extraction; and wind- and solar-energy generation.

Accompanying the proposed rule was a draft Regulatory Impact Analysis (RIA) pursuant to E.O. 12866.² Any analysis of economic impacts presented in this RIA further refines the draft RIA analysis, makes necessary adjustments to be consistent with the analytical framework and alternatives presented in the final EIS, and incorporates information provided by the public pursuant to the Notice of Intent and the proposed regulations.

As discussed in the final EIS (Section for “Considerations Common to All Alternatives”), we analyzed each alternative with the common assumption that entities may implement measures designed to protect migratory birds from incidental take for a variety of reasons, including: in response to Federal, State, Tribal, or local statutes, regulations, or guidelines; public perception;

² <https://www.regulations.gov/document?D=FWS-HQ-MB-2018-0090-0173>

size of company; cost of implementation; perceived risk of killing migratory birds; availability of standard industry practices; or perceived legal risk due to uncertainty.

3. No Action Alternative

Under the No Action Alternative, the Service would continue to implement the MBTA consistent with the interpretation established by M-Opinion 37050 and further explained in the proposed rule, which defines the scope of the MBTA to exclude incidental take. The Service's enforcement of the MBTA is currently focused on actions directed at migratory birds. Under the No Action Alternative, the Service would still enforce the MBTA in cases of unauthorized actions directed at migratory birds and provide technical assistance to industry, the public, and partners seeking to reduce impacts to migratory birds voluntarily or to comply with other Federal, State, local, or Tribal laws and regulations.

Below are several examples in which migratory birds provide ecosystem services to humans.

Effects on ecosystem services - Many ecosystem services are provided by migratory birds, generating billions of dollars of economic benefits to the U.S. economy (see final EIS "Other Biological Resources – Management of Migratory Birds"). As described in the final EIS ("Effects of the Alternatives on the Human Environment – Migratory Birds"), the level of incidental take occurring under the No Action Alternative may be higher than that for Alternative B as reported in the final EIS ("Affected Environment – Incidental Take"). Increased mortality of birds has a negative effect on the ecosystem services provided by migratory birds. However, data are not readily available to determine the economic value of these changes in ecosystem services.

Economic effects on regulated entities – The economic effects of the No Action Alternative on regulated entities are in part a result of the effects on the implementation of beneficial practices for birds. The No Action Alternative requires no implementation of best management practices, thus does not generate any direct costs associated with these actions. As described in the final EIS ("Effects of the Alternatives on the Human Environment – Migratory Birds"), it is anticipated that over time, more entities would reduce implementation of best practices, reducing costs. However, as described in the final EIS ("Effects of the Alternatives on the Human Environment – Migratory Birds"), while there are a variety of reasons entities implement beneficial practices for birds, there are likely entities that will continue to implement these practices due to concerns regarding the uncertainty of the long-term status of DOI's current enforcement policy as opposed to a rulemaking. Section 2.3 includes information on the types of practices and types of costs associated with implementing best practices. For some industries and practices, there could be costs associated with beneficial practices that entities believe they are compelled to continue implementing, due to the regulatory uncertainty.

With no regulatory action, regulated entities participating in projects that have a Federal nexus would continue to face impacts caused by potential legal challenges to authorization of those projects. The existing patchwork of inconsistent legal standards caused by different Federal appellate courts reaching different conclusions on whether incidental take is prohibited by the MBTA reduces legal certainty for those regulated entities. Regulated entities may face additional

costs in implementing risk-minimizing behaviors in light of the regulatory uncertainty described in the No Action Alternative. For example, entities may incur expenditures used to minimize long-term legal risk and on increased risk premiums on loans, financial capital, and insurance. Similarly, if individual States enact separate incidental take protections for birds in response to the No Action Alternative (see Economic effects on government entities below), as many are now considering, industries doing business across State lines may be faced with an increasingly complex, costly, and inconsistent regulatory environment. However, the primary effect on regulated entities would generally be positive because of the potentially reduced costs resulting from decreased implementation of best practices to avoid incidental take of migratory birds over time.

Birds of conservation concern and other vulnerable bird species face likely negative effects from the No Action Alternative (see final EIS “Effects of the Alternatives on the Human Environment – Migratory Birds”). Some may decline to the point of requiring listing under the ESA. In addition, the lack of legal protection against incidental take for migratory birds under the No Action Alternative may factor into delisting and other listing decisions for birds listed under the ESA, which may prolong such decisions. Entities affecting newly listed species or species delayed for delisting or downlisting from endangered or threatened status as a result of this alternative may face increased costs of compliance. These impacts are difficult to predict and depend on the specific status of each individual species.

Economic effects on government entities – States manage wildlife within their State borders. Most States have relied on the Service implementing the MBTA and enforcing previously prohibited incidental take of birds and have collaborated with the Service’s staff and enforcement capabilities to work with regulated entities to meet both Federal and State requirements. Under the No Action Alternative, States would continue assessing the implications of our new interpretation and exercise of enforcement discretion for incidental take after issuance of M-Opinion 37050 on their regulation of migratory birds and if and how to adjust State policies and capacities to address incidental take. If the No Action Alternative continued indefinitely, this would likely increase costs to at least some States to develop and implement regulatory and policy changes to meet their State mandates to protect birds.

As birds of conservation concern and other vulnerable bird species face likely negative effects from the No Action Alternative (see final EIS “Effects of the Alternatives on the Human Environment – Migratory Birds”), some may decline to the point of requiring listing under the ESA. In addition, the lack of legal protection against incidental take for migratory birds under the No Action Alternative may factor into delisting and other listing decisions for birds listed under the ESA, which may prolong such decisions. Though these impacts are difficult to forecast and depend on the specific status of each individual species, it is reasonable to predict that listing new species or delaying species delisting or other listing determinations as a result of this alternative may increase costs to the Service to implement ESA-related actions.

In sum, the impacts on government entities of the No Action Alternative are expected to be negative and may be significant in some individual cases, although the Service’s law enforcement program would continue to realize cost savings from not enforcing incidental take under the Act.

4. Alternative A: Promulgate regulations that define the scope of the MBTA to exclude incidental take

Under Alternative A, the Service would promulgate a regulation that defines the scope of the MBTA's prohibitions to include only actions directed at migratory birds. This regulatory change is not expected to change current implementation or enforcement of the MBTA (parties are not currently subject to enforcement for the incidental take of birds).

Promulgating this regulation would be consistent with the Department's position, explained in the proposed rule, that the MBTA's prohibitions apply only to actions directed at migratory birds, their nests, or their eggs. Consistent with statutory language and case law, we would continue to view the MBTA's misdemeanor provision as a strict liability crime for any action directed at migratory birds. This is the Service's preferred alternative because it would clarify and more permanently establish the Department's position on whether the MBTA prohibits incidental take, potentially reduce the regulatory burden on the public, and simplify the obligations of the Service's law enforcement officers under the MBTA.

Effects on ecosystem services - Many ecosystem services are provided by migratory birds, generating billions of dollars of economic benefits to the U.S. economy (see final EIS "Affected Environment – Management of Migratory Birds"). As described in the final EIS (see "Effects of the Alternatives on the Human Environment – Migratory Birds"), Alternative A would likely result in an increase in incidental take of birds above the No Action Alternative, which would result in greater loss of ecosystem services provided by migratory birds compared to the No Action Alternative. Data are not readily quantifiable and available to determine an accurate economic value of these changes in ecosystem services, but the amount may be significant.

A loss in ecosystem services provided by migratory birds would be expected in market and non-market goods and services. For example, a loss of birds providing pest insect control would increase crop damage to agricultural producers and some producers would likely incur increased costs for pesticides, which could have their own effects on ecosystem services. Similarly, birds help control insects that are vectors for disease, such as eastern equine encephalitis and the Zika virus. Fewer insect-eating birds would be expected to increase public health costs and mosquito control costs. See the final EIS ("Affected Environment – Management of Migratory Birds") for more examples of ecosystem services.

Economic effects on regulated entities – The economic effects of Alternative A on regulated entities would largely be a result of its effects on the implementation of beneficial practices for birds. As described in the final EIS ("Alternative A – Migratory Birds"), with the increased legal certainty associated with codifying what is prohibited by the MBTA into regulations, it is expected that more entities would reduce or eliminate implementing beneficial practices. Section 2.3 includes information on the types of practices and types of costs associated with implementing them. For some industries and some practices, there would likely be cost savings from not implementing beneficial practices. For example, one best practice applied to many industries, like highway construction, is to avoid construction and vegetation clearing during migratory-bird nesting season in appropriate habitat. There is a cost to delaying projects until

after nesting season, and some operators may choose to avoid such costs with no threat of enforcement under the MBTA.

With the proposed regulatory action, courts would more likely defer to the Service's interpretation of the MBTA than under the No Action Alternative, resolving some or all of the inconsistent legal standards caused by the differing views of Federal appellate courts on whether incidental take is prohibited by the MBTA. Additional benefits may accrue as more regulated entities adjust risk-minimizing behaviors in light of the increased regulatory certainty provided by the rulemaking described in Alternative A. For example, the Service anticipates that the additional legal certainty provided by a regulation may generate additional cost savings as more entities reduce expenditures previously used to minimize legal risk and decrease risk premiums on loans, financial capital, and insurance. However, if individual States enact separate incidental take protections for birds in response to Alternative A (see Economic effects on government entities below), as many are now considering, industries doing business across State lines may be faced with an increasingly complex, costly, and inconsistent regulatory environment.

As birds of conservation concern and other vulnerable bird species face likely negative effects from Alternative A (see final EIS "Effects of the Alternatives on the Human Environment – Migratory Birds"), some may decline to the point of requiring listing under the ESA. In addition, the lack of legal protection against incidental take for migratory birds under Alternative A may factor into delisting and other listing decisions for birds listed under the ESA, which may prolong such decisions. Entities affecting newly listed species or species delayed for delisting or downlisting from endangered to threatened status as a result of this alternative may face increased costs of compliance. These impacts are difficult to predict and depend on the specific status of each individual species.

Economic effects on government entities – States manage wildlife within their State borders. Most States have relied on the Service to implement the MBTA and enforce generally, what was previously the prohibited incidental take of birds. States have also collaborated with the Service's biological and law enforcement staff to assist regulated entities in meeting both Federal and State requirements. Under the No Action Alternative, many States are still assessing the implications of our current interpretation and enforcement policy regarding incidental take on their State regulation of migratory birds and how to adjust State policies and capacities. Under Alternative A, with the legal certainty provided by a regulation, some States may need to enact changes in their regulatory processes and staffing to meet State laws governing birds (see final EIS "Effects of the Alternatives on the Human Environment – No Action Alternative"). This would likely increase costs for States as they work to develop and implement regulatory and policy changes to meet their State mandates to protect birds.

As birds of conservation concern and other vulnerable bird species face likely negative effects from Alternative A (see final EIS "Effects of the Alternatives on the Human Environment – Migratory Birds"), some may decline to the point of requiring listing under the ESA. In addition, the lack of legal protection against incidental take for migratory birds under Alternative A may factor into delisting or other listing decisions for birds listed under the ESA, which may prolong such decisions. Though these impacts are difficult to forecast and depend on the specific status of each individual species, it is reasonable to predict that listing new species or delaying

species delisting or other listing determinations as a result of this alternative may increase costs to the Service to implement ESA-related actions.

5. Alternative B: Promulgate regulations that define the scope of the MBTA to include incidental take

Under this alternative, the Service would promulgate a regulation that interprets the MBTA to prohibit incidental take consistent with the Department's prior interpretation outlined in M-Opinion 37041. By reverting to this interpretation, the Service would view the incidental take of migratory birds as a violation of the MBTA.

The Service's Office of Law Enforcement would investigate incidental take at a particular site or project if it receives a complaint or has reason to believe that an unlawful take occurred. The Service would consider good faith attempts to meet voluntary standards when making enforcement decisions under the MBTA to provide an incentive to implement those voluntary measures. There would be no initial regulatory framework to authorize incidental take under this alternative; the Service would simply rely on law enforcement discretion, as it did under the prior interpretation, in determining when to pursue alleged incidental take violations. There would be a greater burden on regulated entities and the Service's law enforcement officers and uncertainty would remain regarding whether a specific activity that incidentally takes birds could be subject to enforcement. But there would also be greater legal certainty achieved by informing the public, businesses, government agencies, and other entities what is and is not prohibited under the MBTA in a regulation. The Service would have the option of developing a system of regulatory authorization in the future.

Effects on ecosystem services - Many ecosystem services are provided by migratory birds, generating, according to some studies, billions of dollars of economic benefits to the U.S. economy, though the exact nature and size of these benefits is uncertain and contested (see final EIS "Affected Environment – Management of Migratory Birds"). As described in 4.3.3.1, Alternative B is expected to result in a decrease in incidental take of birds relative to the No Action Alternative and Alternative A. This is expected to result in an increase in ecosystem services provided by migratory birds compared to the No Action Alternative and Alternative A. However, data are not readily quantifiable and available to determine the economic value of these changes in ecosystem services.

Habitat restoration from MBTA-related fines as a result of enforcement actions would benefit birds and other ecosystem services provided by that habitat, such as providing clean water, open space, and flood protection. In the past, fine revenue from prosecuting incidental take protected or restored thousands of acres of wetland habitat in priority bird conservation areas (see final EIS Section 2.3.2, Table 2-2 "Total Migratory Bird Treaty Act Collections and Other Adjudications, 2010-2018").

Companies that benefit from ecosystem services, such as certain agricultural producers and eco-tourism companies could expect to benefit from any increases in ecosystem services provided by Alternative B.

Economic effects on regulated entities As described in the final EIS (Section “Effects of the Alternatives on the Human Environment – Migratory Birds”), the threat of enforcement under the MBTA for incidental take of birds and the increase in Service technical assistance recommendations regarding migratory birds would likely result in more entities adopting or enhancing their implementation of beneficial practices for birds. Section 2.3 includes information on the types of practices and types of costs associated with implementing them. It is anticipated that Alternative B would result in increased costs to entities for implementing such beneficial practices compared to the No Action Alternative and Alternative A.

With no regulatory action, regulated entities would likely face additional costs related to differences in enforcement and litigation of projects with a federal nexus across the existing patchwork of inconsistent legal standards caused by different federal appellate courts reaching different conclusions on whether incidental take is prohibited by the MBTA. Additional costs may accrue as more regulated entities adjust risk-minimizing behaviors in light of the decreased regulatory certainty provided by Alternative B. For example, the Service anticipates that the reduced regulatory certainty provided by Alternative B may generate additional costs as more entities increase expenditures to minimize legal risk and potentially experience increased risk premiums on loans, financial capital, and insurance.

As birds of conservation concern and other vulnerable bird species enjoy likely positive effects from Alternative B (see the final EIS “Effects of the Alternatives on the Human Environment – Migratory Birds”), some may avoid declining to the point of requiring listing under the ESA compared to the No Action Alternative and Alternative A. In addition, the legal protection against incidental take for migratory birds under Alternative B may factor into determinations to delist or downlist a species from endangered to threatened status for birds listed under the ESA, potentially increasing the likelihood of delisting or downlisting. Entities may face decreased costs of compliance as a result of these potential effects. These impacts are difficult to predict and depend on the specific status of each individual species.

Economic effects on government entities – States manage wildlife within their State borders. Most States have relied on the Service to implement the MBTA and enforce the previously prohibited incidental take of birds and have partnered with Service staff and enforcement capabilities to assist regulated entities in meeting both Federal and State requirements. Continued reliance on the Service to regulate incidental take prohibitions under the MBTA and to provide technical assistance on birds would avoid the potential costs to States of the No Action Alternative and Alternative A.

The Service would incur increased costs compared to the No Action Alternative to enforce and implement the MBTA under Alternative B. These costs would be required to perform investigations and related law enforcement actions for incidental take violations, and potentially to develop additional technical assistance guidance and increase technical assistance due to the expected increased requests from entities seeking compliance under the MBTA. For example, prior to publication of M-37050, from January 1, 2013, through December 31, 2017, the Service Office of Law Enforcement completed approximately 152 industrial take investigations involving MBTA protected species. These represent approximately 7,906 investigative hours worked by FWS Special Agents and involve industrial take investigations. The total estimated salary cost associated with this enforcement was \$2 million.

As birds of conservation concern and other vulnerable bird species enjoy likely positive effects from Alternative B (see the final EIS “Effects of the Alternatives on the Human Environment – Migratory Birds”), some may avoid declining to the point of requiring listing under the ESA compared to the No Action Alternative and Alternative A. In addition, the legal protection against incidental take for migratory birds under Alternative B may factor into delisting or other listing decisions for birds listed under the ESA, potentially increasing the likelihood of delisting or downlisting from endangered to threatened status and reducing long-term management costs for those species. Though these impacts are difficult to forecast and depend on the specific status of each individual species, it is reasonable to predict that the Service may face decreased costs to implement ESA-related actions as a result of these potential effects.

6. Summary of Effects of Alternatives

Table 4 presents a comparative assessment of the individual impacts of the alternatives in this economic analysis. The three alternatives, including no action, are predicted to have incremental, potentially measurable but not substantial effects on current environmental conditions. The table compares the impact for each alternative on ecosystem services and economic effects, where possible, allowing a direct comparison between alternatives for each impact. It is expected that businesses, members of the public, and Federal, State and local agencies would experience, in the aggregate, a reduction in the time and resources currently devoted to compliance activities associated with migratory birds. Other effects of the rulemaking are summarized in the final EIS (Table S1 – Summary of Effects of the Alternatives).

Due to a lack of currently available information, estimates of the economic effects of the impacts of the proposed rule are not quantifiable in most cases. In addition, costs and benefits that are quantified are based on assumptions and available information and are best viewed as providing a potential scale of the benefit or cost. Table 5 summarizes the economic effects on businesses based on adoption of Alternative A, the preferred alternative. Costs to businesses to implement practices to reduce bird mortality are likely lowest under the Alternative A and highest under Alternative B. However, data are not available to scale costs from individual projects to a national level. Likewise, due to lack of data, the most cost-effective alternative is unable to be determined in this analysis.

TABLE 4 - SUMMARY OF ECONOMIC EFFECTS OF THE ALTERNATIVES

Effect or Impact	No Action	Alternative A: Promulgate regulations to define MBTA to exclude incidental take	Alternative B: Promulgate regulations to define MBTA to include incidental take
Effects on Ecosystem Services	Likely reduction in ecosystem services provided by birds due to potential increase in take from reduced implementation of best practices.	Likely reduction in ecosystem services provided by birds due to potential increase in take from reduced implementation of best practices. Incremental reduction likely to be greater than under No Action.	Likely increase in ecosystem services provided by birds as take is potentially reduced by greater implementation of best practices. Additional ecosystem service benefits from use of fines. Additional ecosystem service benefits from whatever species replaces incidentally taken birds.
Economic Effects	<p>No change likely in legal and financing costs from current implementation of current policy not to enforce incidental takes.</p> <p>Likely decrease in the costs of implementing best practices over time as entities become more confident in the continued implementation of current Policy.</p> <p>May decrease revenue for businesses directly dependent on birds (hunting, bird watching, guides, and ecotourism).</p> <p>May increase costs for businesses dependent on ecosystem services provided by birds (seed dispersal and pollination, etc.)</p>	<p>Likely reduced legal and financing costs with improved legal certainty of regulation.</p> <p>Likely decrease in the costs of implementing best practices when not required by other Federal, State, tribal or local laws and regulations.</p> <p>May decrease revenue for businesses directly dependent on birds (hunting, bird watching, guides, and ecotourism).</p> <p>Likely increased costs for businesses dependent on ecosystem services provided by birds (seed dispersal and pollination, etc.)</p>	<p>Likely net increase in legal and financing costs. A regulation will improve certainty in one respect, but uncertainty will increase regarding whether an activity is subject to enforcement.</p> <p>Likely increased costs for implementing best practices for industries that impact birds to reduce the likelihood of potential enforcement.</p> <p>May benefit businesses directly dependent on birds, if opportunities to see birds increases.</p> <p>May decrease costs to businesses that depend on ecosystem services provided by birds (seed dispersal and pollination, etc.)</p>

TABLE 5 – SUMMARY OF ECONOMIC EFFECTS ON BUSINESSES OF ALTERNATIVE A
RELATIVE TO THE NO-ACTION ALTERNATIVE

NAICS Industry Description	NAICS Code	Bird mitigation measures with no action	Economic effects on businesses	Rationale
Finfish Fishing	11411	Changes in design of longline fishing hooks, change in offal management practices, and flagging/streamers on fishing lines	Likely minimal effects	Seabirds are specifically excluded from the definition of bycatch under the Magnuson-Stevens Fishery Conservation and Management Act, and therefore seabirds not listed under the Endangered Species Act may not be covered by any mitigation measures. The impact of this on small entities is unknown.
Crude Petroleum and Natural Gas Extraction	211111	Using closed wastewater systems or netting of oil pits and ponds	Likely minimal effects	Thirteen States ¹ as of 2009 have regulations governing the treatment of oil pits such as netting or screening of reserve pits, including measures beneficial to birds. In addition, much of the industry is increasingly using closed systems, which do not allow birds to access wastewater, and therefore do not pose a risk to birds. For these reasons, this rule is unlikely to affect a significant number of small entities.

NAICS Industry Description	NAICS Code	Bird mitigation measures with no action	Economic effects on businesses	Rationale
Drilling Oil and Gas Wells	213111	Using closed wastewater systems or netting of oil pits and ponds	Likely minimal effects	Thirteen States ¹ as of 2009 have regulations governing the treatment of oil pits, such as netting or screening of reserve pits, including measures beneficial to birds. In addition, much of the industry is increasingly using closed systems, which do not allow birds to access wastewater, and therefore do not pose a risk to birds. For these reasons, this rule is unlikely to affect a significant number of small entities.
Solar Electric Power Generation	221114	Monitoring bird use and mortality at facilities, limited use of deterrent systems such as streamers and reflectors	Likely minimal effects	Bird monitoring in some States may continue to be required under State policies. The number of States and the policy details are unknown.
Wind Electric Power Generation	221115	Following Wind Energy Guidelines, which involve conducting risk assessments for siting facilities	Likely minimal effects	Following the Wind Energy Guidelines has become industry best practice and would likely continue. In addition, the industry uses these guidelines to aid in reducing effects on other regulated species like eagles and threatened and endangered bats.
Electric Bulk Power Transmission	221121	Following Avian Power Line Interaction Committee (APLIC) guidelines	Likely minimal effects	Industry would likely continue to use APLIC guidelines to reduce outages caused by birds and to reduce the take of eagles, regulated under the Bald and Golden Eagle Protection Act at 50 CFR § 22.26.

NAICS Industry Description	NAICS Code	Bird mitigation measures with no action	Economic effects on businesses	Rationale
Electric Power Distribution	221122	Following Avian Power Line Interaction Committee (APLIC) guidelines	Likely minimal effects	Industry would likely continue to use APLIC guidelines to reduce outages caused by birds and to reduce the take of eagles, regulated under the Bald and Golden Eagle Protection Act at 50 CFR § 22.26.
Wireless Telecommunications Carriers (except Satellite)	517312	Installation of flashing obstruction lighting	Likely minimal effects	Industry will likely continue to install flashing obstruction lighting to save energy costs and to comply with Federal Aviation Administration Lighting Circular AC 70/7460-1M and Federal Communication Commission regulations at 47 CFR §§ 17.21-17.5.

¹The thirteen states include Arkansas, California, Colorado, Illinois, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah and Wyoming (USFWS 2009).

7. Executive Order 13771 Reducing Regulation and Controlling Regulatory Costs

E.O. 13771 requires agencies to do the following:

- Unless prohibited by law, identify at least two existing regulations to be repealed when it proposes for notice and comment or otherwise promulgates a new regulation;
- Unless otherwise required by law or consistent with advice provided in writing by the Director of OMB, ensure that the cost of all new regulations, including repealed regulations, to be finalized in fiscal year 2017, be less than or equal to \$0; and
- To the extent permitted by law, ensure that any new incremental costs associated with new regulations be offset by the elimination of existing costs associated with at least two prior regulations.

OMB issued guidance for implementing E.O. 13771, on April 5, 2017, that defines a deregulatory action as “an action that has been finalized and has total costs less than zero.” Second, existing regulatory actions that are vacated or remanded by a court generally do not qualify for savings (for the purpose of adhering to Section 2 of the Executive Order). Third, the

guidance states that agencies follow OMB Circular A-4 when determining the cost savings generated by a deregulatory action. However, for deregulatory actions that revise or repeal recently issued rules, agencies should not estimate cost savings that exceed the originally estimated costs of the issued rule.

The Service has complied with E.O. 13771 and the OMB implementation guidance for that order. This proposed rule further reduces the compliance burdens already reduced by existing policy by clarifying and providing legal certainty that businesses are not financially liable for incidental take under the MBTA. It is estimated that it would result in cost savings. Therefore, this proposed rule is expected to be a deregulatory action under Executive Order 13771.

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