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## The Effects of the Endangered Species Act on Shellfish Aquaculture in New Jersey

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The Endangered Species Act (ESA) can present a regulatory hurdle for both new and established aquaculture operations. If a species is already listed in the area, a prospective farmer may have trouble securing the necessary permits and approvals needed to get a farm up and running due to the potential impact on the species in question. The ESA can also have implications for established aquaculture operations if a species is newly listed in the area. These implications are illustrated by a recent controversy in New Jersey, where the listing of the red knot as a threatened species affected federal permit renewals for existing oyster farms.

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## The Oyster Industry and Red Knots in New Jersey

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The lower Delaware Bay shoreline in Cape May County, New Jersey, serves as the center of a recovering oyster aquaculture industry with historic roots dating back through generations of local bayside oyster fishermen. The cultivation of the oyster in New Jersey dates back to the 1800s, and the farming of the eastern oyster was once extensive in the state. However, due to the onset of a disease affecting the oyster, oyster aquaculture in the state substantially declined in the 1950s. As a result of the development of disease resistant hatchery-reared oyster seed in the late 1990s, oyster aquaculture is on the rise once again in the state. Contemporary oyster farming is a relatively small, but growing, industry in New Jersey. In 2016, nineteen farms sold 2,029,500 oysters with a farm gate value of \$1,370,060.<sup>1</sup>

Shellfish aquaculture can be both (1) non-structural, traditional, on-bottom shellfish culture or (2) structural. Structural aquaculture uses gear to contain seed oysters as they are raised for cultivation purposes, and these structures, including rebar racks, mesh bags, cages, and floats, all need permits from the U.S. Army Corps of Engineers (Corps) and the State of New Jersey. New Jersey allows structural aquaculture to occur on the Delaware Bay by way of riparian grants, private leases, or an Aquaculture Development Zone lease.<sup>2</sup>

To promote the development of oyster aquaculture in New Jersey the State developed an Aquaculture Development Zone (ADZ) in the mid-2000s. The ADZ is intended to ease permitting burdens on potential oyster farms and locate farms in areas with the fewest use conflicts. The ADZ is meant to streamline the permitting process for farmers, as the New Jersey Bureau of Shellfisheries obtains the necessary permits from the Corps and relevant state agencies on behalf of the individual growers. Grouping multiple aquaculture farms allows the state to manage aquaculture operations effectively, as well as help harvesters share upland access to farms, and access seed, equipment, and technical support for their farms.

In addition to being home to an oyster industry, Delaware Bay is an important stopover location for migratory shore birds, including the red knot (*Calidris canutus rufa*). Red knots

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1. Lisa Calvo, Rutgers N.J. Agric. Experiment Station, New Jersey Shellfish Aquaculture Situation and Outlook Report 2016 Production Year 3 (2018).
  2. U.S. Fish & Wildlife Serv., Biological Opinion on the Effects of Existing and Expanded Structural Aquaculture of Native Bivalves in Delaware Bay, Middle and Lower Townships, Cape May County, New Jersey on the Federally listed Red Knot (*Calidris Canutus Rufa*) 31 (2016) [hereinafter BiOp].

are truly fascinating birds – the birds can fly thousands of miles before stopping and travel up to 19,000 miles annually, completing one of the longest migration distances in the animal kingdom. In order to make these long-distance flights, the birds accumulate large fat stores and eating at their stopover points is a vital part of their migration. Delaware Bay is the final Atlantic stopover point for 50-80% of red knots before flying north to complete their 5,000-mile migration to the Arctic.

The red knot was listed as threatened under the ESA on January 12, 2015. This listing has implications for both the red knot itself and activities in its range that may affect the bird. In fact, the red knot’s listing has already impacted the oyster industry in New Jersey. How the ESA works and why the oyster industry in New Jersey was impacted by the Act’s terms are discussed more fully below.

## **The Endangered Species Act**

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Congress passed the ESA in 1973 to protect both imperiled species and their ecosystems, declaring that the Act’s purpose is to provide a framework that conserves “the ecosystems upon which endangered species and threatened species depend” and establish “a program for the conservation of such endangered species and threatened species.”<sup>3</sup> Further, the goal of the Act is to recover a species to the point where the protections of the Act are no longer necessary.<sup>4</sup>

The ESA is administered by the U.S. Fish and Wildlife Service (FWS) in the Department of the Interior for terrestrial species and by the National Marine Fisheries Service (NMFS) in the Department of Commerce for listed marine species. Once a species is listed as endangered or threatened under Section 4 of the ESA, the Act’s other provisions, such as Section 7 consultation and Section 9 take, come into play.

## **Section 4 Listing**

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Section 4 of the ESA lays out how a species can be listed as either endangered or threatened under the Act. The Act defines endangered species as “any species which is in danger of extinction throughout all or a significant portion of its range.”<sup>5</sup> A threatened species is “any

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3. 16 U.S.C. § 1531.

4. *Id.* § 1532(3).

5. *Id.* § 1532(6).

species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”<sup>6</sup> When making listing determinations, the Act directs the Secretary to take several factors into account, including whether the species’ habitat or range is presently or threatened to be destroyed, modified, or curtailed or if the species is being overutilized. In addition, in making a listing determination, the Secretary must only consider “the best scientific and commercial data available.”<sup>7</sup>

A species can be listed either by the action of the agency on its own or pursuant to a public petition. For the red knot, FWS began to receive petitions to list the species starting in 2004, and the agency received additional petitions in 2005 and 2008. The FWS finally determined to list the red knot as a threatened species pursuant to a 2011 settlement agreement between the agency and the Center for Biological Diversity. The listing became effective on January 12, 2015.

The red knot ESA listing in 2015 triggered certain federal protections under the ESA, including prohibiting the “take” of the species and requiring consultation with the U.S. Fish and Wildlife Service (FWS) for any actions taken by the federal government, such as the issuance of a federal permit, that could “jeopardize” the species.

In addition, once a species is listed, the Act directs either FWS or NMFS to designate “critical habitat,” which are areas that are “essential for the conservation of the species,” but usually does “not include the entire geographical area” that the species could occupy.<sup>8</sup> Critical habitat provides greater protection to the species. Altering critical habitat can contribute to a take under Section 9, and altering habitat also must be considered in Section 7 consultation.

Although the plain language of the ESA mandates the designation of critical habitat by FWS or NMFS, there are many species protected by the ESA for which critical habitat has not been designated. The FWS has not designated critical habitat for the red knot. In fact, critical habitat has not been designated for any listed species in New Jersey. Thus, the additional protections afforded to a species through the designation of critical habitat is not yet available to the threatened red knot.

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6. *Id.* § 1532(20).

7. *Id.* § 1533(b)(1)(A).

8. *Id.* § 1532(4).

## Section 7 Consultation

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Section 7, as codified in 16 U.S.C. § 1536, applies to the actions of federal agencies. Section 7 aims to ensure that any proposed action by the agency “is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of” critical habitat.<sup>9</sup> In essence, the provisions are meant to prevent the federal government from putting a listed species in jeopardy of extinction. Section 7 requires federal agencies to consult with either the FWS or NMFS, depending on the species, on any agency action likely to result in jeopardy to a species or adverse modification of critical habitat.<sup>10</sup>

There are some parameters for when Section 7 applies. Section 7 only applies to federal actions, which are actions “authorized, funded or carried out” by the federal government. Further, consultation only applies to “actions in which there is discretionary federal involvement or control.”<sup>11</sup> Although the consultation requirement applies to all listed plant and animal species and all designated critical habitat, the section only requires consultation if a federal action will jeopardize the species as a whole, not simply individual members of the species.

The potential impacts of a proposed federal action on the listed species or its habitat is assessed through an administrative process known as consultation. Consultation is a two-step process: informal and formal consultation. Informal consultation is an optional process that can be used to determine whether formal consultation is needed. If any listed species are present in the area of the proposed action, and it is possible that the proposed action “may adversely affect” listed species or its critical habitat, then formal consultation is required.

Once consultation is initiated, the ESA prohibits “any irreversible or irretrievable commitment of resources with respect to the agency action.”<sup>12</sup> During the process, the agency proposing the action (“action agency”) works with the “expert agency” – either FWS or NMFS – to determine whether its action will jeopardize the species or adversely modify its habitat.

If formal consultation is needed, the appropriate expert agency will produce a Biological Opinion based on information provided by the action agency. The action agency must provide

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9. *Id.* § 1536(a)(2).

10. *Id.* § 1536(a)(4).

11. 50 C.F.R. § 402.03.

12. 16 U.S.C. § 1536(d).

the “best scientific and commercial data available ... for an adequate review of the effects that an action may have upon listed species or critical habitat.”<sup>13</sup> The Biological Opinion, or BiOp, will consider if the action and its cumulative effects are “likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.”<sup>14</sup> If the answer to this question is yes, the expert agency must formulate Reasonable and Prudent Alternatives (RPAs) that can be implemented by the action agency to avoid jeopardizing the species or harming its critical habitat.<sup>15</sup>

Once the expert agency issues the Biological Opinion, the consultation process is ended. If no jeopardy is found, the project may advance. If the activity will result in some take of the species, the Biological Opinion likely will include an Incidental Take Statement. If the BiOp contains a jeopardy determination, the action agency has three options: it can terminate the action, implement the RPAs, or seek an exemption from the Cabinet-level Endangered Species Committee (known as the God Squad).<sup>16</sup>

The scope of the Biological Opinion is limited to the proposed agency action. Thus, while there may be multiple stressors on a listed species’ survival, the BiOp can only address actions under the control of the permitting agency. For example, if agricultural runoff is harming a listed species’ habitat, but the action agency is getting a renewed permit for a Corps dam, only the impacts from the dam operations are considered in the BiOp, as the expert agency has no authority to dictate actions to another agency not party to that BiOp.

## **The Red Knot Biological Opinion**

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As required by the ESA, FWS, as the expert agency, developed a Biological Opinion for structural aquaculture operations in portions of the Delaware Bay in Cape May County, New Jersey for the Corps, the action agency.<sup>17</sup> The consultation was triggered by the issuance of permits by the Corps to the state of New Jersey for structural aquaculture in ADZ areas. The BiOp considered the potential impacts on the threatened red knot by the Corps’ permits. The red knot BiOp is programmatic, meaning that this initial BiOp looks at the overall Corps’

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13. 50 C.F.R. § 402.14(d).

14. *Id.* § 402.14(h).

15. *Id.* § 402.02.

16. 16 U.S. C. § 1536(e).

17. BiOp, *supra* note 2.

program for certain ADZ areas in Delaware Bay. It includes an Incidental Take Statement (ITS) for some existing oyster farms (See Section 9 discussion below). The FWS and Corps will engage in streamlined consultations as individual permits to farmers are needed under the program.

The BiOp found the Corps permits would not result in jeopardy to the birds or adversely affect their critical habitat (as none has been designated).<sup>18</sup> However, the BiOp does require certain actions, known as Conservation Measures (CMs), that the aquaculture farmers must take to reduce the potential harm of oyster farming on the red knot population. The BiOp states the CMs are non-discretionary actions that aim “to benefit or promote the recovery of” the red knot and are “an integral part of the proposed action...and serve to minimize or compensate for project effects” on the red knot.<sup>19</sup> Among other things, the CMs limit gear placement, farm work hours, and access to all farms, and have resulted in the closure of one farm site and the targeted relocation of a second. The oyster industry in New Jersey is concerned that these measures are not necessary to protect the birds and will ruin the industry. The industry asserts that the oyster farms and red knots interactions are minimal as the farms occur along less than a mile of the roughly one hundred-mile Delaware Bay shoreline that red knots frequent. Furthermore, buffers around farms are in place to enhance red knot protections.

Although the BiOp covers ten years of operations, it does include the opportunity for adaptive management as new scientific information emerges. The agencies are directed to meet at least annually to review any new science. The BiOp allows, but does not require, the CMs to be adjusted accordingly. While the agencies must meet to discuss any new scientific understanding, the BiOp does not mandate that the CMs be adjusted.<sup>20</sup>

## **Section 9 Take**

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The ESA defines *take* to mean “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”<sup>21</sup> The prohibition against taking a listed species, found in Section 9 of the ESA<sup>22</sup> applies to any person subject to the jurisdiction of the United States, including businesses and governmental units. Both lethal and non-lethal

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18. *Id.* 130.

19. *Id.* 150.

20. *Id.* 50.

21. 16 U.S.C. § 1532(19).

22. *Id.* § 1538.

actions can constitute a “take” under the statute. Further, the agencies have defined both “harass” and “harm” through regulations to include activities that interrupt a creature’s essential life functions of breeding, feeding, or sheltering. Therefore, “take” includes many more actions than actually killing an individual member of a listed species.

Under the ESA there can also be what are known as “incidental takings.” An incidental take is “any taking otherwise prohibited, if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.”<sup>23</sup> In other words, when a legal activity has the unintended consequence of harming a listed species, it is described as an incidental take.

The red knot BiOp contained an Incidental Take Statement (ITS) that allows the structural aquaculture industry to impact the red knots up to a certain allowable extent. Thus, certain activities that would otherwise make the aquaculture industry liable for takes under Section 9 are allowed under the ITS. The ITS distinguished between lethal and non-lethal takes, allowing 315 lethal takes from harassment or harm over the ten-year life of the BiOp. The lethal takes are a maximum mortality rate and the FWS did not split up the lethal takes among the individual oyster farms. In comparison, the BiOp does allocate non-lethal takes among certain farms, allocating 644 non-lethal takes to one farm, and 641 to another.

However, for actions not covered by the ITS, the farmers could be liable for a take, even if the take was incidental to the day to day operations of the farm. This means that the farmers could be liable for penalties under Section 10 of the ESA if a red knot was harmed or harassed as a result a farming activity not covered by the ITS. Civil penalties under the Act range from \$500-\$25,000 for each violation, while criminal penalties can be up to \$50,000 or a year in prison. However, depending on the nature of the violation, the actual penalties in a case could be significantly less than the maximum penalty allowed under the Act as the government has significant enforcement discretion.

## **Moving Forward**

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Because Delaware Bay is a vital stopover point for a majority of the population of red knots, there is concern with structural aquaculture’s direct and indirect effects on the birds, as they need to gain enough weight while foraging there to complete their long migration.

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23. 50 C.F.R. § 17.3.



Oyster farmers could scare off red knots just by their presence or by noise. Such distractions could prevent the red knots from feeding. Further, the racks and other equipment could block access to the intertidal zone where the knots feed. In addition, the aquaculture structures could interfere with horseshoe crab breeding activities, which in turn could adversely affect the vital food source – horseshoe crab eggs - of the red knot.

Due to these concerns, several non-governmental organizations petitioned state and federal agencies to stop aquaculture growth and curtail existing activities further out of concern that farm gear and activities may disturb red knots along lower bay beaches during the birds' annual spring migration. Oyster farmers in the Delaware Bay area of New Jersey desire to continue farming in the nearshore intertidal bay area, maintaining their existing 10-acre footprint and enabling carefully planned growth. The farmers, however, wonder whether this is possible given the CMs contained in the BiOp. In fact, multiple farms in the area have already been negatively impacted by the CMs, with one operation shut down and another potentially moving its farm. Therefore, even after the conclusion of the Section 7 consultation process, the two groups continue to debate how the intertidal area of the Delaware Bay should be managed going forward.

## **Conclusion**

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As illustrated by the red knot case study, the ESA can have major implications for aquaculture operations. These implications are not limited to intertidal shellfish aquaculture on the Delaware Bay. The ESA interacts with aquaculture operations across the country. For instance, concerns have been raised about the impact of long line aquaculture on listed North Atlantic right whales, as there is potential for the listed whales to get caught up in the lines. Further, the recent decision of Louisiana to allow farming of the Eurasian sterlet sturgeon is controversial due in part to concerns of potential environmental impacts if any of the starlet sturgeon were to escape into the wild. Escaped starlet sturgeon could compete with both the pallid and Gulf sturgeon, both of which are native to Louisiana and protected under the ESA. Similar concerns exist in the Pacific Northwest concerning farmed salmon and the potential impacts of escaped non-native species on the listed, native salmon species in the area. Thus, in areas where species are or could potentially be listed, aquaculture farmers need to be aware of the potential applicability of the ESA to their operations and prepared for additional regulatory oversight.