Conchservation in the Caribbean: A Call for Stricter Fishing Regulations of the Queen Conch

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I. INTRODUCTION

The enigmatic queen conch has long been the subject of fascination by cultures worldwide. From the symbolic nature of its shell in *Lord of the Flies*\(^1\) to the eponymous "Conch Republic,"\(^2\) the conch is a cherished marine icon. Yet, despite its tremendous cultural, culinary, and economic importance, the average person has much to learn about this giant sea snail.

The queen conch faces extinction. Conch populations are declining at an alarming rate as Caribbean fishers are taking an unsustainable amount of queen conch for export and local wholesale. This article contends that the queen conch’s downward spiral towards extinction can be reversed, or at the very least minimized, with stricter fishing regulations by Caribbean nations.

While overfishing of the queen conch is rampant throughout the Caribbean, this article will focus on the Bahamian queen conch fishery and its respective regulations. Whereas queen conch populations in many nations have become severely over-exploited and show little signs of recovery,\(^3\) the Bahamas has not quite reached a threshold where the queen conch population is beyond repair.\(^4\) However, at the current rate of fishing queen conch, the Bahamas will deplete its populations.\(^5\)

Part I provides pertinent background information on the queen conch such as its biological characteristics; its historical and current

\(^{1}\) E.C. Bufkin, *Lord of the Flies: An Analysis*, 17 GA. REV. 40, 46 (1965) ("The conch, Golding makes clear, is a symbol of order and reason; it represents the voice of authority, at first heeded then flouted.").


\(^{4}\) See id. at 17 ("[O]verall populations may still be considered stable although that local stock depletions and populations declines have started to occur.").

\(^{5}\) See id.
significance to humans; and its population decline. Part II discusses contemporary conservation efforts by multilateral treaties and nonprofit organizations, as well as an unsuccessful petition to place the queen conch under the Endangered Species Act. Part III explores existing international laws of the sea and the nations that must abide by them. Part IV presents the major issue – what current queen conch fishing regulations are in the Bahamas, why they are not sufficient, and how stricter regulations will preserve conch populations.

II. THE QUEEN CONCH

A. Biology

The queen conch, alternatively known as *Strombus gigas*, is a large, marine mollusk. The conch belongs to the class Gastropoda and is known as a gastropod. Gastropods are typically comprised of snails, which have a shell that the animal can withdraw into, and slugs, which either have no shell or the shell has been reduced to an internal fragment over the course of evolution. Gastropods can be further classified as either terrestrial or aquatic. While terrestrial gastropods only comprise one-third of species, aquatic gastropods encompass the majority with two-thirds of species. Conchs, oysters, clams, squids, and octopuses are all gastropods.

The queen conch is found in thirty-nine territories and countries throughout the Caribbean Sea and the Gulf of Mexico. Queen conchs primarily inhabit sand, seagrass bed, and coral reef

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7 Id.
10 Id.
11 NOAA FISHERIES OFFICE OF PROT. RES., supra note 6.
12 THEILE, supra note 3, at 12.
habitats. Further, the queen conch prefers warm, shallow water. Adult queen conchs typically prefer to live at ten to thirty meters depth. Juvenile queen conchs, on the other hand, have specific habitat requirements and are found near shore.

The queen conch is quickly identified by its iconic shell. To compensate for its soft body, the queen conch protects itself in an external, spiral-shaped shell with a beautiful glossy pink or orange interior. The shell also has large prominent spines at the spiral end. As the largest Strombid conch, the queen conch has a maximal shell length of approximately twenty-four to twenty-nine centimeters.

The queen conch feeds on macroscopic algae and small non-living organic material - commonly known as detritus - from seagrasses and macrophytic algae. Adult queen conchs typically feed

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14 Id.
15 THEILE, supra note 3, at 14.
16 Id.
18 THEILE, supra note 3, at 14.
19 Id.
20 Id.
during day and night, while the juveniles feed primarily at night because they remain buried in the sand during the day.21

The queen conch’s movement patterns differ vastly from other gastropods. Typically, a gastropod will move by using the muscular waves of their “foot” to glide along a surface;22 in contrast, the queen conch moves by using short hops.23

Sexual maturity is particularly important as it relates to conch fishing regulations in the Caribbean. The sexual maturity of the queen conch occurs approximately at the age of three to four years.24 Likewise, after three to four years, the queen begins to develop a large flared lip shell or a “flared lip.”25 Notably, a queen conch that is forming its flared lip is not a sexually mature adult, but rather a “sub-adult.”26 Despite this, there is generally a strong correlation between the development of a flared lip and the animal’s sexual maturity. Subsequently, most Caribbean nations with an active conch fishery regulate conch fishing according to whether the conch has a well-formed flared lip or not.

Although an approximation allows for sexual maturity at three years, the consensus among experts is that the queen conch does not reach sexual maturity until four years.27 The four year requirement comes with a caveat. The queen conch’s flared lip must have developed and have reached a shell thickness of approximately five millimeters.28 A flared lip paired with satisfactory shell thickness is often considered a better indicator of sexual maturity than a flared lip alone.

Queen conchs differ in size from region to region.29 There are many environmental factors that influence a queen conch’s size.30 Local conditions such as water depth, habitat, and food sources all impact a queen conch’s growth, allowing for some regional conch to mature

21 Id.
23 Id.
24 THEILE, supra note 3, at 14.
25 Id. at 15.
26 Id.
27 See id.
28 Id.
29 Id.
30 Id.
Because the queen conch has such unusual growth patterns, it is imperative that fishing regulations account for variances in sexual maturity. Queen conchs will live up to twenty years or more.

B. The Economic Importance of Queen Conch for the Bahamas

The fishing industry is big business. Humans have relied upon the ocean’s bounty as a food source for centuries upon centuries. Currently, marine fisheries are considered the main source of protein for one billion people. Moreover, the fisheries sector provides for approximately five to ten percent of the world’s food supplies.

The queen conch is no stranger to the fishing industry. Humans have found a variety of uses for the queen conch and its striking shell. Conch shells were cherished in aboriginal culture and were often used as ceremonial objects, ornaments, trumpets, and tools. Even today, the queen conch is admired by cultures around the world. The Turks and Caicos Islands feature a queen conch shell prominently on its flag and consider the animal a national symbol.

Today, the queen conch is predominantly used as a food source. Caribbean nations and the United States use conch meat to make dishes such as conch fritters, conch soup, conch chowder, ceviche, and conch burgers. As such a popular and versatile food source,
conch is continually demanded yet limited in supply. The United States alone is responsible for the consumption of eighty percent of the world’s queen conch trade.

Caribbean nations derive huge economic benefits from the conch fishing industry. The Bahamas considers its queen conch fishery to be the second most commercially important fishery in terms of weight and value of landing after its spiny lobster fishery. Conch fishing is primarily done by free divers collecting conch with their hands.

In Bahamian waters, the queen conch is primarily fished from two areas: the Little Bahama Bank and the Great Bahama Bank - specifically the Berry and Andros Islands. A 1995 Bahamian fisheries census concluded that there were 9,300 full-time fishers and over 4,000 fishing vessels. Despite this information, the proportion of fishermen that target conch as their primary catch is difficult to determine.

The majority of Bahamian fishermen target spiny lobster because it is currently the principal fishery resource of the Bahamas. In contrast, queen conch fishing is done primarily during the closed season for spiny lobster. Demand for conch is seasonal with sixty

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43 L.G. Gittens & M.T. Braynen, Bahamas National Report— CFMC/OSPESCA/WEC AFC/CR FM Working Group on Queen Conch, 1 (2012), available at http://strombusgigas.com/Meeting%20Panama/Queen%20Conch%20Meeting%20(23%20October)/Bahamas/Bahamas%20national%20report.pdf (This report was presented by the Bahamas to the Working Group on the Queen Conch, which is comprised of representatives from Caribbean and Central American Nations.).

44 Id.

45 THEILE, supra note 3, at 17.


47 See id.

48 See id. Spiny lobster is known as crawfish in the Bahamas.

49 THEILE, supra note 3, at 22.
percent of all conch landings taking place during the summer months, a
time when the lobster fishery is closed.\textsuperscript{50}

The structure and organization of queen conch fisheries can be
classified as either artisanal or industrial.\textsuperscript{51} Artisanal conch fisheries
have moderate harvests with the primary purpose of supplying local
demand.\textsuperscript{52} Artisanal conch fisheries also export some meat within the
region.\textsuperscript{53} On the other end of the spectrum, industrial conch fisheries
involve large vessels, higher production levels, and a well-developed
processing sector.\textsuperscript{54}

The Bahamas conch fishery can be classified as industrial.\textsuperscript{55}
While sustainability of the queen conch fishery for environmental
reasons may not be the Bahamas’ chief concern, the country is
economically incentivized to sustain the species. Currently, the
Bahamas exports approximately $3.3 million worth of conch per
annum, which translates into 600,000 pounds of conch.\textsuperscript{56} The Bahamas
National Trust’s executive director, Eric Carey, described the potential
extinction of the queen conch as “the number one marine resources
management issue in the Bahamas.”\textsuperscript{57}

Queen conch extinction would directly impact the lives of
fishers and their families as well as deal a devastating blow to
Bahamian tourism.\textsuperscript{58} Queen conch is a staple of Bahamian cuisine,
which in turn serves as a cornerstone for marketing the Bahamas to
tourists.\textsuperscript{59} Commenting further on the need for queen conch
sustainability, Carey stated that “[w]hen you consider the stakes of the
game, it’s a lot, and impacts so many Bahamians at so many levels.”\textsuperscript{60}

\textsuperscript{50} Gittens & Braynen, supra note 43, at 1.
\textsuperscript{51} THEILE, supra note 3, at 22.
\textsuperscript{52} Id.
\textsuperscript{53} Id.
\textsuperscript{54} Id.
\textsuperscript{55} See id. at 26.
\textsuperscript{56} Neil Hartnell, Conch’s Extinction Threat “Very Alarming” for Economy, TRIBUNE
\textsuperscript{57} Id. (The Bahamas National Trust is a non-governmental organization created by an
Act of Parliament in 1959. It is responsible for the management of the Bahamas’
national parks.)
\textsuperscript{58} See id.
\textsuperscript{59} See id.
\textsuperscript{60} Id.
C. Population Decline

The overall status of queen conch fisheries worldwide is dismal. Queen conch fishery resources range from areas "that were severely over-exploited in the past and show little signs of recovery" to areas that "appear heavily exploited and show signs of depletion and potential recruitment failure." The Bahamas conch fishery is in trouble. Bahamian fishing grounds are showing signs of collapsing conch populations, with conch densities decreasing to levels that will not sustain the populations. Research has shown that conch densities have decreased as much as thirty-five percent over the last two decades. Because populations are rapidly declining, Bahamian queen conch are falling below the critical thresholds for reproduction. The harvest of sexually immature queen conch is a major contributing factor.

Community Conch, a non-profit organization aiming to protect queen conchs in the Bahamas, has suggested three main factors that contribute to the queen conch's vulnerability to Bahamian overfishing: (1) the queen conch is long-lived and late to reproductive maturity; (2) the queen conch has unique mating behavior; and (3) the potential Allee effects on the population.

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61 Theile, supra note 3, at 17.
63 Id.
64 Id.
65 Id.
67 Id. "Conch need relatively high population densities to reproduce and replenish a fished population. If numbers within a population decline greatly it is possible that mating will not occur at the frequency needed to sustain itself leading to population change."
III. INTERNATIONAL OCEAN LAWS AND ORGANIZATIONS

A. The International Ocean Regime

Historically, the oceans have been poorly regulated. Since the early 1600s, the guiding principle for seafarers was "freedom of the seas." Consequently, the oceans were thought of as infinite in reach and its marine resources inexhaustible. The middle of the twentieth century—almost four hundred years later—brought dramatic reform from this principle. The public soon became cognizant of overfishing and pollution and recognized that unregulated waters could cause untold damage to the marine ecosystem. Accordingly, coastal nations began to assert jurisdiction over their respective marine territories.

In 1982, the international community reached a milestone. The 1982 United Nations Convention on the Law of the Sea ("U.N. Convention") codified international ocean laws that had been followed by the world’s nations for almost two centuries prior. Additionally, the U.N. Convention provided new rules to assist with unresolved issues. The U.N. Convention provided much needed structure to international ocean law. Some have analogized the U.N. Convention as an "international constitution for the oceans," providing comprehensive descriptions of the rights, duties, and responsibilities of each nation.

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69 Id.
70 Id.
71 Id.
72 See id.
73 See id.
75 See id. at 444.
76 Id.
77 Id.
B. The Caribbean Community and Common Market

Caribbean nations have formed strong cultural and economic bonds through the creation of the Caribbean Community and Common Market ("CARICOM").\(^7^8\) CARICOM has endured a long road to get where it is today. The British West Indies Federation, established in 1958 and composed of ten Member States, sought to achieve regional integration of the Caribbean.\(^7^9\) However, the British West Indies Federation was short-lived, ending in 1962.\(^8^0\)

Seeking a replacement, Caribbean political leaders discussed other methods of strengthening ties between the islands. Rising from the ashes of the British West Indies Federation, the Caribbean Free Trade Association ("CARIFTA"), a Free Trade Area, was established on May 1, 1968.\(^8^1\) CARIFTA began with only four Member States, Antigua, Barbados, Trinidad and Tobago, and Guyana, but quickly grew to encompass most of the Caribbean region.\(^8^2\)

CARIFTA underwent another transformation in October 1972. Caribbean leaders decided to "transform CARIFTA into a Common Market and establish the Caribbean Community. . . ."\(^8^3\) After a drafting stage, the Caribbean Community Treaty was signed on July 4, 1973, and came into effect in August of that year.\(^8^4\) Like CARIFTA, CARICOM was originally composed of four Member States, Barbados, Guyana, Jamaica, and Trinidad & Tobago, all which were independent nations.\(^8^5\) However, the next year brought the addition of eight Caribbean territories.\(^8^6\)

\(^7^9\) Id.
\(^8^0\) Id.
\(^8^1\) Id.
\(^8^2\) Id.
\(^8^3\) Id.
\(^8^5\) Id.
\(^8^6\) Id.
Today, CARICOM has worked towards the creation of the CARICOM Single Market and Economy (“CSME”).

Akin to the European Union, the CSME allows for the free movement of capital, goods, services and people among Member States as well as a common external tariff, a common trade policy, and a common currency. The CSME also aggregates company and intellectual property laws of Member States.

With some Member States having limited capital and resources, the importance of CSME is clear. In an ever-global market place, CSME protects CARICOM Member States through unification. Whereas mega trading blocs and Free Trade Areas are prevalent in today’s global market, the CSME allows Caribbean nations to possess much more significant trading power.

The Bahamas was not originally a member of CARICOM. On July 4, 1983, the Bahamas became the thirteenth nation to join CARICOM as a Member State. Interestingly, the Bahamas is not a part of the CSME, acting independently. Bahamian public opposition against the Bahamas joining the CSME has been fierce. Bahamian citizens fear that joining the CSME will result in illegal immigrants working for lower domestic wages. Further, Bahamian citizens do not see any economic benefits to joining the CSME as the Bahamas does not.

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89 CARIBBEAN CMTY. SECRETARIAT, supra note 87.
91 See Joseph, supra note 88.
92 See id.
93 See CARIBBEAN CMTY. SECRETARIAT, supra note 87.
94 Id.
95 Id.
96 See Joseph, supra note 88.
trade much with other Caribbean nations. Whether the Bahamas will ever become a part of the CSME is uncertain at this point.

The Caribbean Regional Fisheries Mechanism ("CRFM"), a derivative organization of CARICOM, was established in 2003. The CRFM "promotes the sustainable use of fisheries and aquaculture resources in and among Member States, by developing, managing and conserving these resources in collaboration with stakeholders to benefit the people of the Caribbean region." The CRFM consists of three bodies—the Ministerial Council, the Caribbean Fisheries Forum, and the CRFM Secretariat and includes all CARICOM member states. The Ministerial Council is the highest decision making body for the CRFM, formulating the policy.

IV. CONSERVATION EFFORTS

The following sections highlight ongoing conservation efforts to protect the queen conch fishery. These conservation efforts range from regulatory in nature to allowing for long-term sustainable harvest of the animal.

A. Convention on International Trade in Endangered Species of Wild Fauna and Flora

Organized in 1975, the Convention on International Trade in Endangered Species of Wild Fauna and Flora ("CITES" or "Convention") serves as a global watchdog of endangered species conservation. As the only global treaty of its kind, CITES’ focus is “to ensure that international trade in plants and animals” do not threaten

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97 See id.
99 Id.
101 Id.
their survival in the wild.103 Countries adhere to CITES voluntarily and once bound by the Convention are known as Parties.104

After becoming a Party, CITES is binding on the nation, requiring the Convention to be implemented.105 However, while still legally binding, CITES does not supersede a Party’s national laws.106 The Party is thus responsible for implementing the Convention into its own domestic legislation, with CITES simply providing a framework.107 Today, 179 countries, including the Bahamas, have joined CITES as Parties to preserve the world’s wildlife.108

Under CITES’ categorization, species that require protection are listed in one of three appendices.109 The appendices represent the level of protection required for listed species.110

The first appendix, Appendix I, “lists species that are the most endangered among CITES-listed animals and plants,” thus requiring the highest level of protection.111 Because Appendix I species are threatened with extinction, CITES prohibits international trade in specimens of these species.112

The second appendix, Appendix II, “lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled.”113 International trade of Appendix II species is authorized provided that an export permit or re-export certificate is granted.114

The third appendix, Appendix III, “is a list of species included at the request of a Party that already regulates trade in the species and

104 Id.
105 Id.
106 Id.
107 Id.
108 Id.
110 See id.
111 Id.
112 Id.
113 Id.
114 Id.
that needs the cooperation of other countries to prevent unsustainable or illegal exploitation.”115 Appendix III species require the lowest level of protection.116

In 1992, the United States proposed that the queen conch be listed in Appendix II due to high demand and declining populations.117 CITES adopted the proposal during the CITES Eighth Conference of the Parties in Kyoto, Japan,118 and CITES has listed the queen conch as an Appendix II species.119

The dichotomy between the Appendix I and Appendix II status is a double-edged sword. On one hand, listing an animal as Appendix II means that its populations are still sufficiently large to avoid extinction, while still allowing the unsustainable trade that will drive towards listing it as Appendix I. On the other hand, listing an animal as Appendix I enacts safeguards, such as banning trade, that will greatly aid in the reproduction of the species; yet, an Appendix I listing bears the sad realization that the species’ population are so severely depleted that it is near extinction.

While listing the queen conch as an Appendix I species would benefit the species as a whole, it is uncertain whether such a change will be made in the near future. Fortunately, the Working Group on Queen Conch has suggested addendums to queen conch management that have been implemented by CITES.120 The addition – titled “regional cooperation on the management of and trade in the queen conch (Strombus gigas)” — suggest the creation of joint research programs, the reporting of pertinent information and progress to the CITES

115 Id.
116 See id.
118 Id.
Secretariat, and detailed monitoring of conch specimens. The queen conch certainly needs the increased scrutiny that these additions provide; however, there may be a time when it is not enough.

B. Petition for Queen Conch to Be an Endangered Species

On February 27, 2012, WildEarth Guardians, a nonprofit environment advocacy organization working to protect “wildlife, wild places, and wildwaters,” submitted a petition to list the queen conch as an endangered species under the ESA. The petition was unsuccessful. Despite this, the door has not been completely shut; WildEarth Guardians and similar conservation groups may still pursue other avenues to get the queen listed and protected as an endangered species.

1. The Endangered Species Act

The United States Congress passed the Endangered Species Act (“ESA”) in 1973. The ESA provides that the United States will “conserve to the extent practicable the various species of fish or wildlife and plants facing extinction.” As a listed Party, the United States acts pursuant to CITES as well as many other international treaties and conventions. While the Interior Department’s U.S. Fish and Wildlife Service (“FWS”) governs terrestrial and freshwater organisms, the Commerce Department’s National Marine Fisheries Service (“NMFS”) oversees marine wildlife. As required by 16 USC § 1533, either the Secretary of Commerce or the Secretary of the Interior (“Secretary”) is

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121 See id.
122 TOWNSEND, supra note 41, at 1.
126 Id.
127 U.S. FISH & WILDLIFE SERVICE ENDANGERED SPECIES PROGRAM, supra note 124.
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responsible for determining "whether any species is an endangered species or a threatened species...".\textsuperscript{128}

The Secretary may make this determination because of any or all of the following factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or manmade factors affecting its continued existence.\textsuperscript{129}

Since the queen conch is marine wildlife, the Commerce Department has jurisdiction over its potential endangered species status.\textsuperscript{130} Subsequently, WildEarth Guardians' petition was submitted to the U.S. Secretary of Commerce, acting through the NMFS.\textsuperscript{131} Currently, the queen conch is not listed as threatened or endangered under the ESA.\textsuperscript{132}

2. The Petition Process

The focus of 16 U.S.C. § 1533—alternatively known as Section 4 of the ESA—is the determination of endangered species and threatened species.\textsuperscript{133} The first critical step in species protection is listing species as threatened or endangered under the ESA; a determination made solely on scientific factors, not economic or other factors.\textsuperscript{134} The substantive protections of the ESA do not apply until and unless a species is officially listed.\textsuperscript{135}

A petition to list a species under the ESA may be pursued through FWS or NMFS.\textsuperscript{136} As the queen conch is a marine species, the NMFS is the appropriate administrative body. NMFS highlights two

\textsuperscript{128} 16 U.S.C. § 1533 (2003); 16 U.S.C. § 1532 (2012) (defining “Secretary” as the Secretary of the Interior or the Secretary of Commerce).
\textsuperscript{130} See U.S. Fish & Wildlife Service Endangered Species Program, supra note 124.
\textsuperscript{131} See Townsend, supra note 41, at 1.
\textsuperscript{132} See id. at 1.
\textsuperscript{133} 16 U.S.C. § 1533.
\textsuperscript{135} Id.
\textsuperscript{136} See id.
ways that marine species can be listed under the ESA: (1) "any U.S. citizen or organization may petition [NMFS] to list a species as 'threatened' or 'endangered,' reclassify a species, or revise [a] critical habitat"; (2) "[NMFS] may initiate a status review of a species."137 WildEarth Guardians’ petition falls into the former category.

Once petitioned to list a species, NMFS takes the following steps. First, the NMFS makes a determination on whether the petition presents substantial information.138 If the petition does present substantial information, NMFS will publish a positive ninety-day finding in the Federal Register—the official journal of the federal government of the United States—that it considers the species a "Candidate" for listing under the ESA.139 A status review of the species is then conducted.140 If the petition does not present substantial information, NMFS will publish a negative ninety-day finding denying the petition in a Federal Register notice.141

Second, NMFS makes a determination on whether a listing is warranted.142 The government cannot act unless a determination is made on the "basis of the best scientific and commercial data available...."143 If, after reviewing the best scientific and commercial information available, the listing is found to be warranted, NMFS publishes a twelve-month finding in the Federal Register—called a "proposed rule"—within one year of the date of the petition, proposing to list the species as threatened or endangered.144 If the listing is not warranted, NMFS publishes a negative twelve-month finding in the Federal Register, stating that the listing is not warranted.145

Finally, after the publication of a proposed rule, NMFS will consider public comments and new information before making a final

138 Id.
139 Id.
140 Id.
141 Id.
142 Id.
144 Nat’l Oceanic and Atmospheric Admin., supra note 137.
145 Id.
determination. Once considering all factors, the final determination is published in the Federal Register.

3. WildEarth Guardians' Petition

WildEarth Guardians' petition formally requested that the Secretary change the queen conch's status to threatened or endangered. As a "slow moving" and "easily identifiable" marine creature, the queen conch is "particularly vulnerable to exploitation."

Looking to the ESA, WildEarth Guardians advocated that the queen conch is threatened by four of the five factors by which the Secretary can make a determination. While all four factors must be taken into consideration, WildEarth Guardians contended that factor 2, the overutilization of conch for commercial resources, is the most severe threat to the conch population. The only factor that does not threaten the queen conch is factor 3, disease or predation. The definitive goal of listing the queen conch as endangered is to limit or restrict the United States take and import of the species.

WildEarth Guardians' petition was unsuccessful. In a recent decision, NMFS "determined that the species does not warrant listing at this time." Using the "best scientific and commercial information available," the NMFS concluded that "the queen conch is not currently in danger of extinction." The listing of the queen conch as a United States endangered species would have led to a prohibition of conch imports to the United States. Provided that a species of fish or wildlife is endangered, 16 U.S.C. § 1538 bars the "import [of] any such species

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146 Id.
147 Id.
148 TOWNSEND, supra note 41, at 1.
149 Id.
150 Id.
151 Id.
153 See TOWNSEND, supra note 41, at 1.
155 Id. at 65628.
156 Id.
into, or export [of] any such species from the United States."

Classifying the queen conch as endangered would likely have had little to no effect on exports as Florida, a primary habitat of queen conch in the United States, outlawed conch fishing. However, an endangered conch would have had a very real impact on imports and the conch trade as a whole.

The ban on exports and imports would have ceased all trade of queen conch and products derived from queen conch between the United States and CARICOM member states. As the United States is the largest importer of queen conch in the world, the ban would have greatly reduced global demand for queen conch. The reduced demand would in turn affect the amount of queen conch that fishers from CARICOM nations take. CARICOM has recognized that a ban would have affected their economy: "The CRFM has congratulated member states after a US government review of the status of the Queen Conch keeps the region's conch fishery alive." A ban on imports of the queen conch to the United States would have been beneficial to Caribbean—specifically, Bahamian—conch populations. As mentioned above, the queen conch’s late sexual maturity and tendency to mate in large numbers leaves the animal particularly vulnerable to overfishing. Reduced fishing efforts as a result of an ESA listing would grant the queen conch a much-needed reprieve from current, incessant fishing operations. With less conch taken per annum, queen conch would once again be able to mate in numbers that allow for sustainability of the species.

Though success would be unlikely, WildEarth Guardians could appeal the decision not to list. Section 706(2)(A) of the Administrative Procedure Act ("APA") states that "the reviewing court shall hold unlawful and set aside agency action, findings, and conclusions found to be—arbitrary, capricious, an abuse of discretion, or otherwise not in

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158 See infra note 187.
160 U.S. Fish and Wildlife Serv. Int'l Affairs, supra note 42.
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accordance with law. . . .”162 “The APA creates a cause of action for challenges to final agency decisions. . . .”163 A court would most likely find that NMFS’ negative twelve-month finding regarding the queen conch is a final decision and can be challenged.

The reviewing court’s standard is narrow, and the court “‘is not empowered to substitute its judgment for that of the agency.’”164 A court can only set aside an action “if the agency identified no ‘rational connection between the facts found and the choice made,’ if the ‘explanation for its decision [is] counter to the evidence before the agency, or is so implausible that is could not be ascribed to a difference in view or the product of agency expertise.’”165 If an “agency considered the relevant factors and articulated an explanation establishing a rational connection between the facts found and the choice made, the court will not substitute its judgment for that of the agency”166

Courts have found agencies to be arbitrary and capricious in refusing to list species as endangered or threatened. In Defenders of Wildlife v. Babbitt, “[t]he agency’s decision not to list the [Canada] Lynx made several critical factual findings that [were] directly contradicted by the undisputed facts in the Administrative Record.”167 However, a similar outcome is unlikely with the NMFS twelve-month queen conch finding. Here, a court would likely find a rational connection because the NMFS finding considers the best available scientific information as required by 16 U.S.C. § 1533 and establishes a connection between the facts provided and its listing decision.168

WildEarth Guardians or other conservation groups may re-petition NMFS. Title 50 of the Code of Federal Regulations governs petitions submitted under the ESA.169 “Any interested person may

164 Id.
165 Id. at 22.
166 Id.
168 See generally Endangered and Threatened Wildlife and Plants: Notice of 12-Month Finding on a Petition to List the Queen Conch as Threatened or Endangered under the Endangered Species Act (ESA), 79 Fed. Reg. 65628.
submit a written petition to the Secretary requesting that one of the actions described in § 424.10 be taken.”170 The document “must clearly identify itself as a petition and be dated.”171 After ninety days of receiving a petition, “the Secretary shall make a finding as to whether the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted.”172 WildEarth Guardians’ petition sought to list the queen conch as threatened or endangered under the ESA and to designate critical habitat for the species in U.S. waters. New petitions may not have immediate success as NMFS just concluded a twelve-month negative finding for queen conch.

However, NMFS’ group of biologists and marine mollusk experts—known as Extinction Risk Analysis (“ERA”)—did acknowledge pending threats to conch populations in the recent finding. Under a section titled “Inadequacy of Existing Regulatory Mechanisms”, the NMFS finding stated “the ERA group ranked the existing conch fishery regulations employed by foreign nations to be ‘high risk’ threat, which indicates that this threat poses a danger of extinction for queen conch in the near future.173 With luck, future petitions will have greater success with listing the queen conch as endangered or threatened, granting the species the protection it needs.

C. Commercial Conch Farms

Conservation efforts can be balanced with the economic demand for queen conch. Chuck Hesse (Hesse), a former Navy officer and a marine biologist, presents a formidable case that queen conch can be successfully farmed.174 The Caicos Conch Farm (“Farm”) began to take form around 1983 when Hesse proposed the idea of a commercial

170 Id.
171 Id.
173 Endangered and Threatened Wildlife and Plants: Notice of 12-Month Finding on a Petition to List the Queen Conch as Threatened or Endangered under the Endangered Species Act (ESA), 79 Fed. Reg. 65628, 65638.
Conch farming is complex and expensive, but Hesse believes that there is great economic opportunity in conch mariculture.\textsuperscript{180} Pitching the benefits of conch farming, Hesse stated that "[c]onchs have no known diseases or parasites, are in short supply, are grass eaters, and are in great demand."\textsuperscript{181} Further, conchs are higher in protein than most other seafood and are second to salmon in Omega-3 fatty acids.\textsuperscript{182}

Hesse attempted to set up a conch farm in the Bahamas with funding from the International Finance Corporation ("IFC").\textsuperscript{183} Regrettably, the bid fell through because the IFC only provides loan and equity financing for private sector projects in developing countries, and the Bahamas was considered too rich to qualify for funding.\textsuperscript{184}

Because the Farm’s focus is primarily research and development rather than commercial operation,\textsuperscript{185} the Farm has a wealth of knowledge concerning conch mariculture. Additional conch sustainability efforts, or perhaps a new conch farm, could learn from
the Farm's vast experience. Hopefully, the Farm will continue to lead the development of conch farming for many years to come.

V. BAHAMIAN FISHING REGULATIONS

A. Historical Perspective

Despite occurring decades earlier, the fate of queen conch in Florida is prophetic to what will transpire in the Bahamas if more stringent standards are not adopted. Queen conchs were once found in abundance from the Florida Keys to Key Biscayne. However, due to its popularity as a food source, the queen conch was commercially and recreationally overfished. Former Florida House of Representative Member Joe Allen witnessed the transformation firsthand: "When I was a boy growing up in Key West, you could take out a boat and a glass-bottom bucket and in an afternoon, you'd get a boatful [of conch]. Now, you're lucky to find one." Florida legislators acted in 1975, banning the commercial fishing of queen conch. In 1985 and 1986, the ban was extended to include recreational fishing of queen conch.

As it stands today, a person may not fish for queen conch commercially or recreationally; this applies to people in Florida waters and federal waters aboard a vessel registered in Florida. The Florida Fish and Wildlife Conservation Commission manages and regulates the Florida conch fishery through Chapter 68B-16 of the Florida Administrative Code. Chapter 68B-16.001 designates the queen conch as a protected species, citing a need for extensive conservation action to protect it. Further, Chapter 68B-16.004 states "[a] person may not harvest, kill, molest, harm or mutilate a queen conch within or without Florida Waters."

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187 See id.
188 Belleville, supra note 174.
189 GLAZER, supra note 186, at 1.
190 Id.
191 Id.
The state of Florida strictly enforces conch fishing regulations against violators. As recently as October 2012, NBC Miami reported that two Miami residents were jailed for harvesting forty live queen conchs from the waters off Islamorada.\footnote{Two Arrested for Illegally Harvesting Queen Conchs: Deputies, NBC MIAMI (Oct. 22, 2012), available at http://www.nbcmiami.com/news/local/Two-Arrested-For-Illegally-Harvesting-Queen-Conchs-Deputies-175152041.html.} Florida does provide some leniency with regards to conch shells. Conch shells can be harvested as long a person takes an empty shell.\footnote{Fla. Admin. Code Ann. r. 68B-16.0042 (2013).} However, a person may not remove or kill the conch to obtain that empty shell.\footnote{id. § 6.}

B. General Fishing Regulations in the Bahamas

The Bahamas oversees its marine resources through the Fisheries Resources (Jurisdiction and Conservation) Act ("Fisheries Act").\footnote{Fisheries Resources (Jurisdiction and Conservation) Act, ch. 244, 5 STAT. L. BHS. 3 (1977) (rev. ed. 2000), available at http://laws.bahamas.gov.bs/cms/images/LEGISLATION/PRINCIPAL/1977/1977-0013/FisheriesResourcesJurisdictionandConservationAct_1.pdf (The Inter-American Citation guide has been used to cite to this source).} The Fisheries Act seeks to conserve and manage Bahamian fishery resources by extending Bahamian jurisdiction over those resources.\footnote{See generally id.} Jurisdiction is established through the creation of an "exclusive fishery zone of The Bahamas."\footnote{Id. § 4.} The exclusive fishery zone grants the Bahamas the "sovereign rights and exclusive authority" over its fishery resources.\footnote{Id. § 6.} With this authority, the Bahamas may explore, exploit, conserve, and manage any fishery resource of the seabed, subsoil, and superjacent waters.\footnote{Id. § 6.}

The sovereign right of the Bahamas over its waters prohibits any foreign fishing within the exclusive fishery zone.\footnote{Id. § 7.} The Bahamas provides many exceptions to its sovereign right;\footnote{Id. § 7.} in most instances, foreign vessels may fish in Bahamian waters if the vessel’s country of
origin has entered into a treaty with the Bahamas, and the country is granted a valid license by the Prime Minister of the Bahamas ("Prime Minister"). The Bahamian government regulates foreign fishing by requiring that any foreign state submit an application for a fishing license to the Prime Minister before the first day of January. The foreign state’s application must accurately represent each fishing vessel wishing to fish in the exclusive fishery zone for the year.

The Governor-General of The Bahamas ("Governor-General") determines the optimum yield of the exclusive fishery zone. Subsequently, the Governor-General, through proper conservation and management measures, must determine how much of a fishery resource can be taken to produce a maximum sustainable yield. The Governor-General considers all relevant environment and economic factors in making this decision.

The Prime Minister may designate any area of the waters within the exclusive fishery zone to be a protected area. The power bestowed upon the Prime Minister enables him to act as a guardian of Bahamian marine resources. Fishing within a designated protected area is strictly forbidden. Any person who takes a fishery resource from a protected area is guilty of an offence and subject to a fine of

205 Office of the Prime Minister, The Government of the Bahamas, available at http://tinyurl.com/n77h4we. The Prime Minister of the Bahamas, who is the head of the government of the Bahamas, also serves as the Minister of Finance and a Member of Parliament for the island of New Providence.

206 Fisheries Resources (Jurisdiction and Conservation) Act, ch. 244, § 7, 5 Stat. L. BHS. 6 (The Inter-American Citation guide has been used to cite to this source).

207 Id. § 9.

208 Id. § 9.

209 Although the Prime Minister is the head of the Bahamian government, Queen Elizabeth II is the sovereign of the Bahamas. BHS. Const. ch. 6, §§ 71–72, available at http://tinyurl.com/lopc4ac. As Her Majesty cannot preside over the entirety of the Commonwealth, the Governor-General acts in her stead as Her Majesty’s representative in the Bahamas. BHS. Const. ch. 4, § 32, available at http://tinyurl.com/nwakw6z.

210 Fisheries Resources (Jurisdiction and Conservation) Act, ch. 244, § 10, 5 Stat. L. BHS. 9 (The Inter-American Citation guide has been used to cite to this source).

211 Id. § 10.

212 Id. § 10.

213 Id. § 13.

214 See id. § 13.

215 Id. § 13.
seven hundred and fifty dollars or imprisonment up to six months or both. At present, the Prime Minister has issued two declarations of protected areas: the South Berry Islands Marine Reserve and the Exuma (Jewfish Cay) Marine Reserve. The declarations provide vessels with the approximate latitudinal and longitudinal boundaries of the protected areas.

Section 19 of the Fisheries Act grants the Prime Minister the power to make regulations. The regulations are created for a multitude of purposes concerning the conservation and management of fishery resources within the exclusive fishery zone. The regulations enacted by the Prime Minister govern the conservation of the queen conch along with many other species.

C. Queen Conch Fishery Regulations in the Bahamas

The Fisheries Resources (Jurisdiction and Conservation) Regulations ("Fisheries Regulations"), enacted by the Prime Minister, specifies the individual fisheries to be protected by Bahamian rules and regulations. The Fisheries Regulations specifically provide for the
following species: crawfish, conch, turtles, scale fish, stone crab, marine mammals, and sponges.\textsuperscript{224}

Before addressing individual species, the Fisheries Regulations designate general restrictions that apply to all fishers.\textsuperscript{225} Fishers may not use any prohibited apparatus to fish.\textsuperscript{226} This restriction prohibits the use of scuba gear, or any other form of underwater breathing apparatus, as well as spear guns.\textsuperscript{227} Instead, the fisher is required to use a snorkel and a Hawaiian sling when fishing.\textsuperscript{228}

The Fisheries Regulations place basic restrictions on conch fishing. Part III, titled Conch, is represented as follows:

\textit{Possession of undeveloped conch prohibited.}

27. (1) No person shall take, have in his possession or sell any conch the shell of which does not possess a well formed flaring lip.
   (2) No person shall sell any conch shell which does not possess a well formed flaring lip.

\textit{Export of conch, by-product or shell.}

28. (1) No person shall for commercial purposes export and conch, by-product of conch or any whole conch shell unless —
   (a) he holds a licence in that behalf granted by the Minister under regulation 66;
   (b) the conch or by product of conch is submitted for inspection to a fisheries inspector at the time of exportation; and
   (c) the export duty specified in the Second Schedule is paid.

   (2) Nothing in paragraph (1) shall apply to any conch in a quantity not exceeding ten pounds in weight and

\textsuperscript{224} See id. §§ 27–45.
\textsuperscript{225} Id. § 3–15.
\textsuperscript{226} Id. § 10.
\textsuperscript{227} Id. § 2.
\textsuperscript{228} See id. § 2.
carried in the personal baggage of a person leaving The Bahamas. 229

The Fisheries Regulations also place restrictions on the amount of queen conch that can be harvested from recreational vessels. 230 Sportfishing regulations state that “no vessel shall have” more than six queen conch “on board at any time.” 231

Florida works cooperatively with the Bahamas to enforce Bahamian fishing regulations. Targeting private recreational vessels traveling to the Bahamas, the Florida Fish and Wildlife Conservation Commission provides a summary of Bahamian regulations on its website. 232 While Bahamian law permits a private recreational vessel to be in possession of six queen conch, Florida will strictly enforce its ban on the creature. 233 Florida vessels must obtain proper Bahamian fishing and/or cruising permits when lawfully entering and exiting the Bahamas. 234 Vessel operators that do not comply by bringing Bahamian product to Florida are considered to be in violation of Bahamian law. 235 Additional penalties may include Lacey Act violations and referral to the Bahamian authorities. 236

D. Inadequacies of Bahamian Queen Conch Regulations

Subsection 27 of Part III does not provide enough protection to the Bahamian conch fisheries. Despite the critical importance of the queen conch fishery to the Bahamas, its sustainability is governed by a mere half page of regulations. 237 Subsection 27 bases its restrictions on

229 Id. §§ 27–28.
230 Id. § 48.
231 Id.
233 Id. (“[T]here is no exception which allows private recreational vessels to bring queen conch back to Florida from the Bahamas (68B-16.003(1)), even if lawfully purchased there.”).
234 Id.
235 Id.
236 Id.
237 See 4 STAT. L. BHS. SUB. LEGIS. 10 (the Inter-American Citation guide has been used to cite to this source).
the possession of undeveloped conch on a sole factor: whether the animal has a “well formed [sic] flaring lip.” While certainly taking steps towards a solution, conch conservationists have suggested that the Bahamas’ constraints based on the well-formed flaring lip of a conch’s shell is not enough to protect it.238

A conch with a well-formed flaring lip indicates that the conch is at least three and a half years of age.239 Yet, this fishing criterion may not provide the necessary protection for reproduction that the species requires.240 While some queen conch may become mature with thin shell lips, many do not reach sexual maturity until after their shell forms a flared lip.241 Because a flared shell lip does not guarantee sexual maturity, experts suggest that shell thickness should be the criterion for the legal harvest of queen conch.242 This suggestion is supplanted by nearly two decades of research and knowledge.243

Experts believe that their recommendation for new fishing regulations based on shell thickness will be unpopular with nations using the well-formed flaring lip criterion.244 Naming the Bahamas specifically, experts cite two primary reasons why shell thickness will be unpopular.245 First, a minimum lip thickness will decrease the number of queen conch available for legal harvest.246 Second, a minimum lip thickness requirement will require landing queen conch in the shell.247 Typically, fishers excise the conch from its shell in order to carry more on board.248 Fishing vessels will now need to bring the

239 Id. at 77.
240 Id.
241 Id.
242 Id. at 82.
243 Id.
245 Id.
246 Id.
247 Id.
248 See id.
entire conch—the shell and the creature—to shore for measurement, fewer queen conch can be carried on board, and fishers will need to impose higher prices on buyers to offset costs.  

Some countries and territories already have implemented a shell thickness requirement such as Cuba, Venezuela, Colombia, Puerto Rico, and the U.S. Virgin Islands. However, in many cases, the damage is done. Many nations have depleted their conch fishery to the extent that it is no longer economically viable. The harvest of immature queen conch by Caribbean nations is a major contributing factor to the rapid decline of conch fisheries.

Subsection 28 details the prerequisites needed to export conch, its shell, or any by-product of the conch. Generally, the subsection requires that commercial fishers do the following: have a valid fishing license, have their catch evaluated by a fishing inspector, and pay all export duties. The subsection regulates commercial fishing to an extent by requiring a license from the Prime Minister. However, after a comparison of Part III – Conch with Part II – Crawfish, Subsection 28 is severely lacking.

Unlike successful conservation efforts with turtle, grouper, and shark fisheries, the Bahamian National Trust has stated that conch has been difficult to conserve due to its broad appeal as a food source. Whereas the spiny lobster – referred to in Bahamian statutes as crawfish – is regulated through fishing seasons, the queen conch is in open season year round. Bahamian law provides that “there shall be an annual closed season for crawfish extending from 1st April to 31st July (inclusive).” The statute further elaborates that fishing for live or

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249 Id.
250 See id.
251 Id.
252 Id.
253 See 4 STAT. L. BHS. SUB. LEGIS. 10 (the Inter-American Citation guide has been used to cite to this source).
254 Id. §§ 27–28.
255 Id.
256 See id. §§ 16–28.
257 See Hartnell, supra note 56.
258 See 4 STAT. L. BHS. SUB. LEGIS. 7 (the Inter-American Citation guide has been used to cite to this source).
fresh spiny lobster during the closed season is strictly prohibited, unless
the fisher is granted a permit.259

The intricate details of Bahamian spiny lobster regulations
provide a stark contrast to the simplicity of queen conch regulations.
Spiny lobster regulations include the following provisions: a closed
season where fishing is prohibited, a minimum size requirement, a
vessel with a measuring gauge, a required permit for lobster trapping, a
prohibition of the harvest of egg-bearing spiny lobster, and an
inspection of spiny lobster for sale.260 These regulations, as opposed to
the queen conch regulations, allow for greater sustainability of principle
fisheries.

There are instances in which Bahamian regulations for the
queen conch succeed. Without the designation of prohibited devices,
fishers would be able to pick conch with reckless abandon. As the conch
is a slow-moving, sedentary seabed dweller, the requirement that
fishers use snorkels give the creature a fighting chance. Because queen
conch aggregate in large numbers during their spawning season, they
would be particularly vulnerable to fishers using dive equipment.261
Scuba gear would enable fishers to stay on the seafloor for long periods
of time, harvesting as many conchs as they can carry. The snorkel
requirement adds much needed difficulty to the profession, barring
entry to all but those who can hold their breath for a lengthy duration.

E. Recommendations to Bahamian Statutory Law

At present, Bahamian statutory law does not adequately protect
its queen conch fishery. The current and sole measurement criterion, “a
well formed [sic] flaring lip,” has been shown by scientific studies to be
unsatisfactory towards species preservation.262 By no means is the well-
formed flaring lip a bad criterion; rather, there are supplementary
measurement techniques that should work in conjunction with it.263
Statutory additions to Subsection 27 based on improved management
measures will grant the queen conch much needed safeguards.

259 Id. § 17.
260 Id. §§ 16–26.
261 See THEILE, supra note 3, at 15.
262 See id. at 48.
263 See id.
First, shell thickness of the well-formed flaring lip is a well-documented measurement technique that provides increased assurance to the fisher that the conch is sexually mature.\textsuperscript{264} In general, the conch is sexually mature when its flared lip reaches a thickness of approximately five millimeters.\textsuperscript{265} However, studies have still shown that the animal may still be sexually immature at that shell thickness.\textsuperscript{266} Puerto Rico has remedied this by requiring a shell thickness of 9.5 millimeters as to assure the harvest of sexually mature animals.\textsuperscript{267} Bahamian law should, at a minimum, impose a shell thickness requirement of at least 5 millimeters to its existing prerequisite of a well-formed flaring lip.

Second, a closed season would greatly aid the queen conch fishery. Currently, the queen conch fishery is open year-round in the Bahamas. The Bahamas is the only West Indian country without a closed season on conch.\textsuperscript{268} A perpetual open season does not give the fishery adequate time for sexual reproduction.\textsuperscript{269} As queen conch tend to migrate to shallow waters and cluster in large groups, the spawning season leaves the queen conch particularly vulnerable to fishermen.\textsuperscript{270} Although the spawning season generally begins in July and lasts through September, the season may begin as early as April and end in October.\textsuperscript{271} The Bahamas has recognized the importance of fishing seasons; spiny lobster is given a four-month closed season, beginning on April 1st and ending on July 31st. The queen conch should be granted the same protection. Bahamian law should implement a closed season for the queen conch during the spawning season.

Third, protected areas bolster the local population of queen conch, promoting the longevity of the species. With specialized research, key habitats and spawning grounds may be identified that require additional safeguards, free from the grasp of fishermen.

\textsuperscript{264} See id.
\textsuperscript{265} Id.
\textsuperscript{266} Id.
\textsuperscript{267} Id. at 48.
\textsuperscript{269} See THEILE, \textit{supra} note 3, at 50.
\textsuperscript{270} Id. at 15.
\textsuperscript{271} See \textit{id.} at 16.
Currently, the Bahamas has two no-take fishery zones. The Prime Minister has the ability to designate additional protected areas. The Bahamas should employ the use of more protected areas to guarantee the safety of certain conch populations.

F. The Human Element

1. The Effect on the Bahamian People

In a vacuum, statutory changes such as those recommended could be more easily adopted. Measurement criteria that help sustain the preservation of an entire marine species could be added to Bahamian statutory law. However, there is no vacuum, and the implementation of such measurements would have serious consequences for the Bahamian people.

Queen conch is the Bahamas' second most principal fishery. With a Bahamian population of near 320,000\(^2\) and about 9,300 active fishers, fishers comprise approximately three percent of the population. Three percent is a sizable portion of the population and should not be discounted. Statutory measures impacting the amount of queen conch that queen conch fishers may land will directly affect a Bahamian fisher’s livelihood and their ability to feed their family. The Bahamian Minister of Agriculture and Marine Resources, V. Alfred Gray, has stated that conch harvesting for local consumption brings in as much as six million dollars annually into the Bahamian fisheries sector.\(^3\)

Looming in the background is an oft-forgotten repercussion of increased conservation efforts. As detailed above, a successful petition to list the queen conch under the Endangered Species Act would cut all queen conch trade between the Bahamas and the United States. With the United States importing eighty percent of all international conch landings, a queen conch trade embargo with Caribbean nations would be devastating.\(^4\) Fortunately, queen conch exports comprise only


\(^{274}\) Id.
about one-third of total Bahamian conch landings. Nevertheless, the Bahamas would certainly feel the economic impact of a no-trade situation with the United States, with current Bahamian exports of queen conch at 600,000 pounds with an estimated value of 3.3 million dollars annually.\textsuperscript{275}

Gray believes that listing the queen conch under the Endangered Species Act would be “catastrophic” for the Bahamas, calling on CARICOM to do everything in its power to prevent the queen conch from being listed.\textsuperscript{276} As a small chain of islands, the Bahamas has limited capital and resources.\textsuperscript{277} Subsequently, the Bahamas has limited industries.\textsuperscript{278} The agriculture and fishery industry alone makes up five percent of the labor force.\textsuperscript{279} Removing queen conch from trade would take away a significant source of revenue and damage the labor force. In turn, the tourism industry, which has fifty percent of the Bahamian labor force, would be harmed by a shortage of conch, a staple food for Bahamian resorts and restaurants.

Despite the hardship that would be endured by Bahamians, stricter fishing regulations of the queen conch fishery should be favored over what is currently employed. The more lenient regulations are understandable. The Bahamas depends on the queen conch fishery to stimulate the economy. Simultaneously, queen conch need stricter fishing regulations to stimulate their populations. But ultimately, if stricter regulations are not imposed, there will be no queen conch to regulate. Queen conch populations will diminish in the Bahamas, and the Bahamian queen conch fishery industry will collapse.

2. The Collapse of the Canadian Newfoundland Cod Fishery

Nothing is more predictive of a queen conch collapse than the collapse of the Canadian Newfoundland cod fishery. Prior to 1992, the Newfoundland Grand Banks had a rich history as the world’s most productive fishing grounds, providing plentiful Atlantic cod for local

\textsuperscript{275} Id.
\textsuperscript{276} Id.
\textsuperscript{277} See Cent. Intelligence Agency, supra note 272.
\textsuperscript{278} McKenzie, supra note 273.
\textsuperscript{279} See Cent. Intelligence Agency, supra note 272.
small-scale fishing and feeding millions of harp seals. However, the 1950s and 1960s brought radical changes. Through technological advances, fishing trawlers became commonplace, overpowering small fishing boats and taking an unprecedented amount of cod; trawlers were able to harvest 200 tons of cod in one hour, which is almost twice the amount a sixteenth-century ship would catch in an entire season.

Fishing vessels were stronger, allowing for ships to work on the Grand Banks for months at a time. Compounding the problem, regulatory measures relating to the cod fishery were based on economic factors rather than ecological ones. With inflated estimates about the cod population, cod fishers were taking an unsustainable amount of fish for harvest. Cod harvests peaked at 800,000 tons in 1968. In subsequent years, cod populations began to dwindle with the annual catch falling by more than sixty percent in 1975. Rather than creating stricter regulations and reducing fishing zones to combat decreased catches, Canada extended its fishing limit for foreign vessels from twelve miles off the coast to two-hundred miles in 1977. In the 1980s, additional measures were taken; trawlers employed the use of sonar and satellite technology to find remaining caches of cod. While this resulted in a short-term success - cod catches were stable - there were red flags about the future of the fishery.

Despite warnings from traditional inshore fishers and the scientific community, Canadian government members refused to take action in fear of the political repercussions. Inevitably, the cod catch

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281 See id.
282 See id.
283 Id.
285 Id.
286 Id.
287 GREENPEACE, supra note 280.
288 Id.
289 Higgins, supra note 284.
290 GREENPEACE, supra note 280.
291 See id.
reached its lowest point in 1992. The Canadian government shut the fishing industry down indefinitely in July 1992 by enacting a moratorium on the northwest Atlantic Cod fishery. The result was calamitous; 40,000 people across five Canadian provinces lost their jobs. A several billion-dollar relief package was needed to support the coastal community.

Today, the moratorium, considered to be the single-largest mass layoff in Canadian history, is still in effect. Fortunately, cod populations in the Grand Banks region have grown sixty nine percent since 2007. However, there is a long road to recovery as current cod stocks are ten percent of what the stocks were in the 1960s. The economic repercussions of the moratorium are still felt by the fishers of the region. Despite finding work in the less lucrative shellfish industry, fishers have had increased hardship with substantially lower incomes and dependence on government aid.

CONCLUSION

Bahamian statutory measures are not the sole means of protecting queen conch populations. While in many respects the conservation efforts detailed in Part IV can aid in sustainability better than Bahamian statutory measures, the primary question is whether the conservation efforts are feasible. A ban on trade would have lasting repercussions on the people of Caribbean nations, and the enactment of such conservation efforts may take years to process. For these reasons, this article contends that amendments to Bahamian statutory law

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292 Id.
293 Higgins, supra note 284.
294 GREENPEACE, supra note 280.
295 Id.
298 Id.
would result in a more expedited process than the conservation efforts listed above.

There is little doubt that if the Bahamas prioritizes short-term objectives such as those pursued by the Canadian government rather than long-term objectives focused on the sustainability of the queen conch, the aftermath will be quite similar to the Canadian moratorium. Politicians are reasonable in fearing that increased regulatory measures will hurt the Bahamian economy; yet, the alternative is much worse. No queen conch means no money and no jobs. Statutory regulations will help towards avoiding the worst case scenario and allowing for a sustainable queen conch industry in the Bahamas.

VII. APPENDIX FOR ABBREVIATIONS

- Caicos Conch Farm ("Farm")
- Caribbean Community and Common Market ("CARICOM")
- Caribbean Free Trade Association ("CARIFTA")
- Caribbean Regional Fisheries Mechanism ("CRFM")
- CARICOM Single Market and Economy ("CSME")
- Chuck Hesse ("Hesse")
- Convention on International Trade in Endangered Species of Wild Fauna and Flora ("CITES" or "Convention")
- Endangered Species Act ("ESA")
- Fisheries Resources (Jurisdiction and Conservation) Act ("Fisheries Act")
- Governor-General of The Bahamas ("Governor-General")
- National Marine Fisheries Service ("NMFS")
- National Oceanic and Atmospheric Administration ("NOAA")
- Prime Minister of the Bahamas ("Prime Minister")
- Secretary of Commerce or Secretary of the Interior ("Secretary")
- U.S. Fish and Wildlife Service ("FWS")