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# Queen Conch ESA Proposed Listing

December 6th, 2022  
CFMC Public Meeting  
NOAA Fisheries - Southeast Regional Office

# Agenda

## Presentation (~20 min)

*ESA Listing Process and Proposed Rule*

## Q & A Session

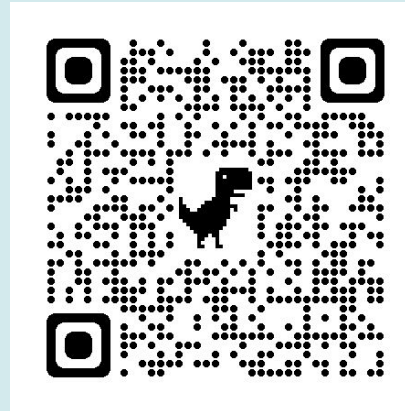
*Note Q & A Session restricted to clarification  
on Listing Process and Proposed Rule*

**Public Comments should be made online or  
by mail. Comments given during the Q & A  
session or during Public Comment to the  
Council WILL NOT BE CONSIDERED IN THE  
OFFICIAL RECORD**

## Public Comment

To submit a written comment online, please go to:

<https://www.regulations.gov/commenton/NOAA-NMFS-2019-0141-0013> or use the QR code below:



**Public comment  
period closes on  
15 Dec 2022.**



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# How Do Species Become Protected Under the Endangered Species Act (ESA)?

NOAA scientists use the ***best scientific and commercial information available*** as the basis for their listing decisions. Scientists may not consider the economic impact of listing a particular species.

A species must be listed if it is threatened or endangered due to **any** of the following five factors:

- A. Present or threatened destruction, modification, or curtailment of its habitat or range;
- B. Overutilization for commercial, recreational, scientific, or educational purposes;
- C. Disease or predation;
- D. Inadequacy of existing regulatory mechanisms; and
- E. Other natural or human-made factors affecting its continued existence.

The ESA requires that listing determinations be based solely on the best scientific and commercial information available; ***economic impacts are not considered*** in making species listing determinations and are prohibited under the ESA.



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# What is an Endangered or Threatened species?

**Endangered:** a species is considered “endangered” if it is in danger of extinction **throughout all or a significant portion of its range.**

- An “endangered species” is interpreted to be ***presently at risk of extinction.***
- Endangered species are automatically protected by prohibitions of several types of "take" – including harming, harassing, collecting, or killing, under Section 9 of the ESA.

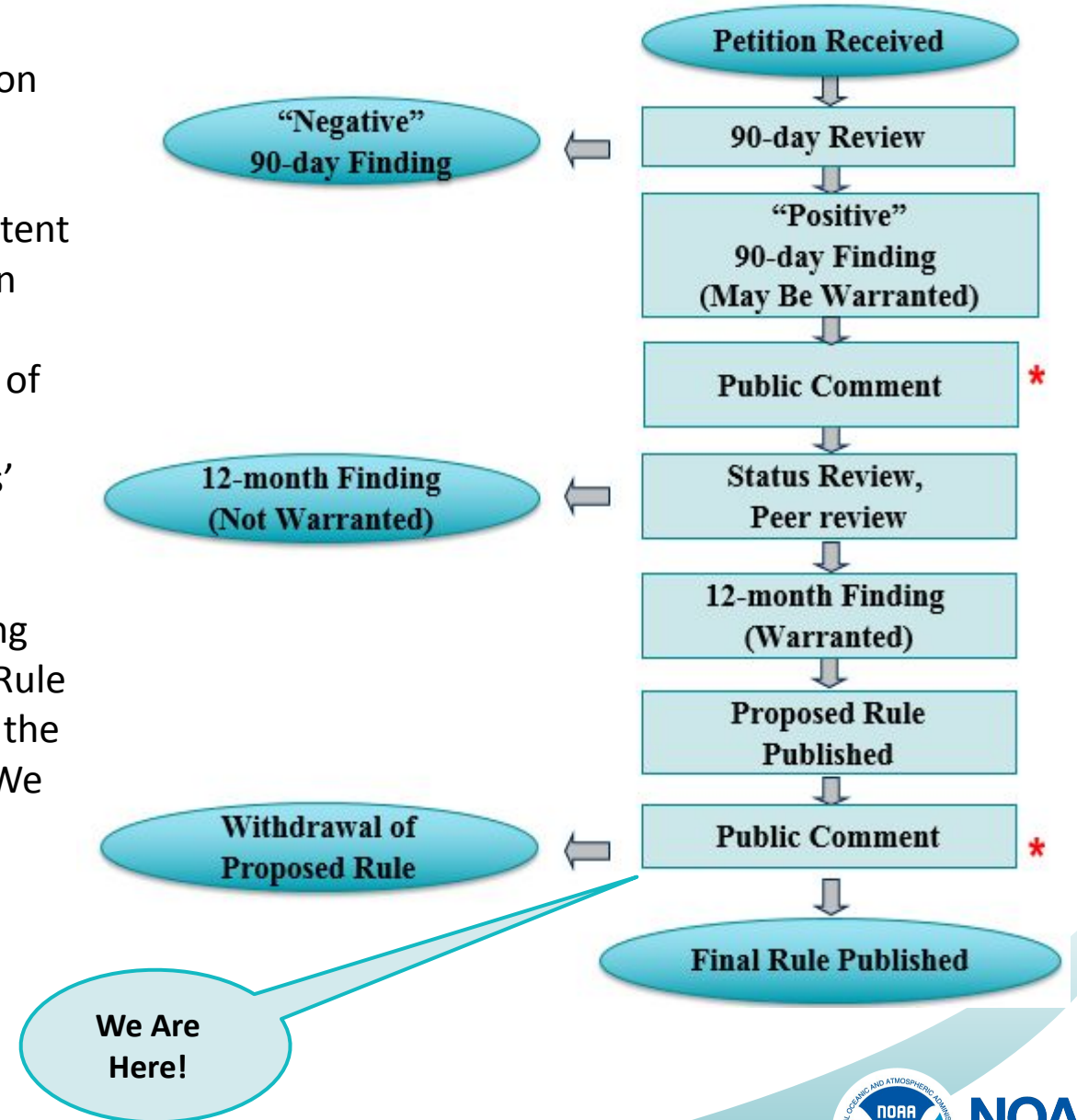
**Threatened:** defined as "any species which is likely to become an endangered species within the foreseeable future **throughout all or a significant portion of its range.**"

- A “threatened species” is interpreted as a species that is ***not currently at risk of extinction but is likely to become so in the foreseeable future.***
- Threatened species can receive protections through separate regulations issued under Section 4(d) of the ESA. **These regulations occur separately from the listing.** Also called 4(d) rules, they can include the same prohibitions under Section 9 of the ESA.
  - 4(d) rules allows us to **customize** prohibitions and regulate activities to provide for the conservation of threatened species.

# ESA Listing Process - Timelines

The following diagram shows the steps we take to evaluate a petition to list, delist, or reclassify a species.

- After receiving a petition, **within 90 days** (to the maximum extent practicable), we must publish a finding that states our decision whether or not to accept the petition.
- After we publish a **positive 90-day finding**, we begin a review of the species' status (i.e., status review).
- Within **one year**, if, after conducting the review of the species' status and considering ongoing conservation efforts, we determine the petitioned action...
  - **Is not warranted** and publish a negative 12-month finding
  - **Is warranted**, we publish a 12-month finding/Proposed Rule
- After publishing a proposed rule to list a species, we consider the public comments and any new data to make a final decision. We may also withdraw the proposed rule if we find there is not sufficient evidence to justify the proposed action.
- The final rule is generally published within one year of the proposed rule.



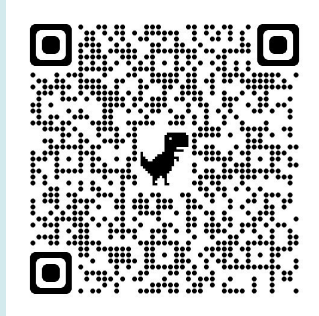
# Endangered Species Act Status Review of the Queen Conch

**Status Review Team:** 7 Scientist and Policy Experts from NOAA Fisheries (Southeast Regional Office, West Coast Regional Office, Office of Protected Resources, Southeast Fisheries Science Center).

**Status Review:** This report summarizes the *best available scientific and commercial information on the species* and presents an evaluation of the queen conch's status and extinction risk. Published as NOAA Technical Memorandum.

- Considered information / data for approximately 39 jurisdictions throughout the Caribbean.
- Evaluated landings data from two international databases (FAO FishStat, Sea Around Us)
- Considered best available data on reproduction, depensatory processes, and reproductive density thresholds.
- Population connectivity model was developed to elucidate impacts from localized low adult densities on population wide connectivity patterns.
- Considered best available information on existing regulatory measures, fisheries management regimes, and compliance and enforcement by jurisdiction.

**Independent Peer Review:** The queen conch status review underwent independent peer review by three external experts; peer reviewer comments are publicly available.



[Status Review](#)



[Peer Review Report](#)



# Status Review of the Queen Conch - Key Findings

**Overutilization** - The most significant threat to queen conch is overutilization (through commercial; artisanal; and illegal, unreported, or unregulated fishing).

**Regulations** - Significant issues with compliance, and morphometric regulations, enforcement, and poaching (IUU) throughout the Caribbean

**Depensatory Processes** - The majority of jurisdictions (69%) were found to be below the minimum adult density threshold required to support mate finding (e.g., 100 adult conch/hectare). These populations are not reproductive and unlikely to be contributing to recruitment and population growth.

**Broken Connectivity** - Species currently suffers from low population densities and poor recruitment throughout a vast majority of its range and experiences limited larval dispersal and interrupted population connectivity.

**Climate Change** - Caribbean region is likely to be impacted by climate change, and those adverse impacts, while not yet fully realized, could have devastating implications for queen conch over the next century (2100).

## Extinction Risk Analysis

*A species is at moderate risk of extinction if it is on a **trajectory that puts it at a high level of extinction risk in the Foreseeable Future.***

**Foreseeable Future** = The time horizon for evaluating whether a species is more likely than not to be at risk of extinction.

Queen Conch Foreseeable Future (All Threats) = **30 years**

Queen Conch Foreseeable Future (Climate change threat only) = **2100 (~ 77 years)**

# From Status Review to Proposed Rule

- Key findings from status review were used to inform the proposed listing determination
  - Status review found that queen conch are at moderate risk of extinction **throughout their range**
- External peer review comments were addressed
- Best available science indicates that the queen conch warrants listing as a "threatened" species



A species must be listed if it is threatened or endangered due to **any** of the following five factors:

- A. Present or threatened destruction, modification, or curtailment of its habitat or range;
- B. Overutilization for commercial, recreational, scientific, or educational purposes;
- C. Disease or predation;
- D. Inadequacy of existing regulatory mechanisms; and
- E. Other natural or human-made factors affecting its continued existence.



# Proposed ESA listing as Threatened

NOAA Fisheries concluded based on the best scientific and commercial information available, including the status review report, and after taking into account efforts being made to protect the species, that the queen conch warrants listing as a threatened species under the ESA.

## Section 4(a)(1) factors:

**Factor B) *Overutilization for commercial, recreational, scientific, or educational purposes.*** The most significant threat to queen conch is overutilization for commercial purposes. Illegal, unreported and unregulated (IUU) fishing, in particular, is a threat that is significantly contributing to the species' extinction risk currently and in the foreseeable future:

- Only 10% (4 jurisdictions) of the 39 jurisdictions reviewed are fishing at or below the 8% exploitation rate and have adult conch densities that are capable of supporting successful reproduction (>100 conch/hectare).
- 41% of the jurisdictions reviewed are exceeding the 8% exploitation rate and have median densities below the 100 adult conch/ha threshold required for successful reproductive activity.
- 33% of the jurisdictions reviewed are exceeding the 8% exploitation rate and have median conch densities below the minimum threshold required to support any reproductive activity (<50 adult conch/hectare).
- IUU fishing of queen conch is a significant problem throughout the range of the species. The best estimates of IUU fishing are most likely underestimated, and may account for a significant portion (greater than 15%) of total catch.

# Proposed ESA listing as Threatened



## Section 4(a)(1) factors: *Continued*

**Factor D) *Inadequacy of existing regulatory mechanisms*.** There are **significant issues with regulatory compliance, efficacy of minimum size regulations to prevent juvenile harvest, limited enforcement of regulations, sparse and inconsistent population monitoring, and substantial poaching.**

- Minimum meat weight, shell length, and flared lip regulations indicates that immature queen conch are being legally harvested in 20 jurisdictions.
- Majority of queen conch fisheries do not have requirements to land queen conch in the shell, which undermines enforcement and compliance with regulations for a minimum shell length, shell lip thickness, and flared shell lip.
- 15 jurisdictions do not have regulations that include a seasonal closure, which is essential to prevent the harvest of spawning adults. Evidence suggests in some cases, closed seasons for queen conch are decided with respect to closure dates for other species (e.g., lobster)
- 21 jurisdictions do not have regulations that prohibit the use of SCUBA gear, which could aid in protecting putative deep-water populations.
- Only a fraction of the jurisdictions are conducting periodic surveys to gather relevant information on the status of queen conch populations to inform their national management regimes.

# Proposed ESA Listing as Threatened

## Section 4(a)(1) factors: *Continued*

**Factor E)** *Other natural or man-made factors affecting the species' existence.*

**Climate Change** - The available information indicates **climate change, specifically sea surface temperatures, ocean acidification, and potential changes in circulation patterns, will likely affect the reproduction, growth, and survival of queen conch in the foreseeable future (e.g., by 2100).**

- CO<sub>2</sub> levels expected by the year 2100 is likely to negatively impact shell formation, since water conditions will be more acidic and potentially dissolve the shells of many mollusks.
- Mean sea surface temperature in the Caribbean Sea in excess of 31°C may have negative implications for early life stages and queen conch reproduction.
- Possible changes in Caribbean Sea circulation patterns would have significant implications for queen conch recruitment processes and reproduction, but the extent of the impacts from changes in circulation patterns to queen conch is not well understood



# Proposed ESA listing as Threatened

## Section 4(a)(1) factors: *Continued*

### **Factor A:** *Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range.*

- Habitat stability, quality, and resilience is decreasing in many parts of the Caribbean due to anthropogenic activities that have led to direct and indirect impacts to seagrass and substrate that are important to queen conch, and increased pollutants, contaminants, and microplastics are impacting conch via their habitats. At this time, the best available information indicates that habitat loss and degradation are not significantly contributing to the species' extinction risk.



Photo: Alexander Tewfik, Wildlife Conservation Society

### **Factor C:** *Disease or Predation.*

- Further information is needed to fully understand the impacts of disease (e.g., parasites) on conch populations. There is no information to suggest that predation rates have increased to a point where predation is now considered a threat significantly contributing to the species' extinction risk.
- Predation is not believed to currently be a factor that is influencing the status of queen conch.



# Will listing the queen conch under the ESA create new prohibitions?

Threatened species **do not** automatically receive protective regulations.

- The listing of queen conch as threatened species does not create any additional, or more specific, prohibition on queen conch trade or harvest.



Any new protective regulations ***deemed necessary and advisable for the conservation of threatened species***, would be issued under Section 4(d) of the ESA, as called a 4(d) rule.

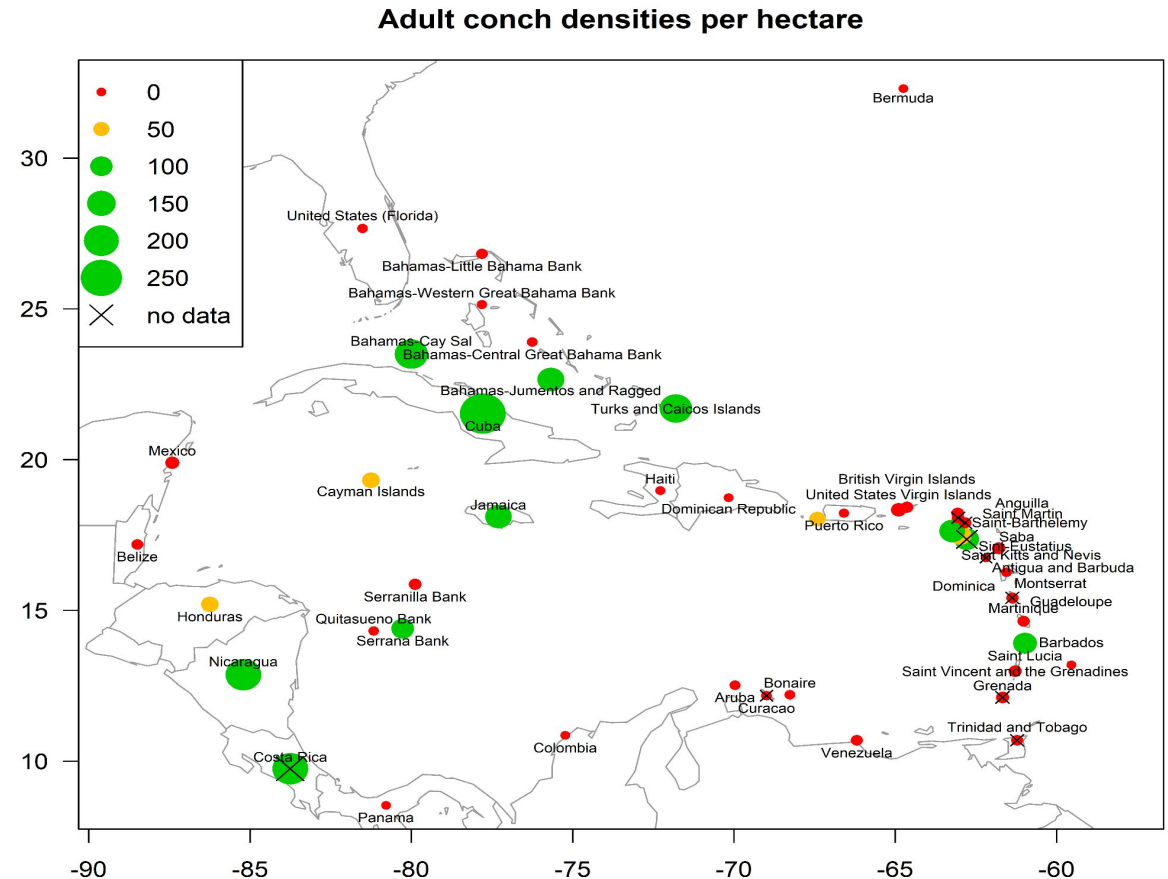
- 4(d) rules allows us to ***customize prohibitions and regulate activities to provide for the conservation of threatened species.***
- Any future 4(d) rule would go through a ***separate notice and public comment period.***

*Puerto Rico and the U.S. Virgin Islands have queen conch fisheries in territorial waters. There is also a federal queen conch fishery in St. Croix within the U.S. Virgin Islands. **The proposed rule does not establish any new prohibitions on conch harvest for these or other jurisdictions.** Harvesting queen conch is currently prohibited in Florida.*



# Queen Conch in the U.S. Caribbean

- Percent of total estimated conch habitat:
  - Puerto Rico = 3.25%
  - Florida = 3.25%
  - USVI = 0.44%
- Percent of total estimated (current) conch population:
  - Florida = 0.22%
  - Puerto Rico = 0.20%
  - USVI = 0.19%
- **U.S. Caribbean = ~3.7% of total conch habitat and <1% of current estimated conch abundance**



# What's Next?

**Proposed Rule - PUBLIC COMMENT EXTENDED (comments must be received by December 15, 2022).**



**New or updated information regarding any of the following is of particular interest:**

1. Information regarding queen conch landings and IUU fishing;
2. Queen conch fisheries-dependent or -independent data including stock assessments;
3. Information on the status of the species, including surveys, density, and abundance information;
4. Information regarding queen conch population structure, age structure, and connectivity;
5. Information on queen conch range, habitat use, and distribution;
6. Data concerning any threats to the queen conch;
7. Information on efforts being made to protect the species throughout its range;
8. Queen conch fisheries management measures; or other pertinent information regarding the species.

**Critical Habitat:** We are also soliciting information on physical and biological features that may support designation of critical habitat for queen conch within U.S. jurisdiction.



**Protective Regulations Under Section 4(d) of the ESA:** In order to inform our consideration of appropriate protective regulations for the species, we will seek information from the public on possible measures for their conservation.



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# What's Next?

1. **Final Listing Determination / Final Rule:** We will consider public comments and make a decision to complete or withdraw the listing. If the decision is to list the species, the final rule will publish (**within 1 year of proposed rule - September 2023**)
  - Final rule will consider and address public comment.
  - **Cannot consider economic factors** when determining ESA status of a species.
  - Will specify when the listing will go into effect (usually 30 days later).
2. **Critical Habitat:** To the maximum extent prudent and determinable, we will publish a proposed designation of critical habitat for the queen conch in a separate rule (**September 2024**). Critical habitat cannot be designated within foreign nations.
  - We seek information on the physical or biological features essential to the conservation of the species that occur within U.S. jurisdiction.
3. **The 4(d) protective regulations:** We are not proposing such regulations at this time, but may consider promulgating protective regulations pursuant to section 4(d) for the queen conch in a future rulemaking (i.e., **after September 2023**).
  - We seek information from the public on possible measures for their conservation.

# Submit Public Comment (Closes December 15, 2022)



You may submit comments, information, or data on this document, identified by the code NOAA-NMFS-2019-0141 by any of the following methods:

- *Electronic Submissions*: comments via the Federal eRulemaking Portal. **Go to [www.regulations.gov](http://www.regulations.gov) and enter NOAA-NMFS-2019-0141 in the Search box.** Click on the “Comment” icon, complete the required fields, and enter or attach your comments.
- *Mail*: NMFS, Southeast Regional Office, % Calusa Horn, 263 13th Avenue South, St. Petersburg, FL 33701;

Comments sent by any other method, to any other address or individual, or received after the end of the comment period, might not be considered by NOAA Fisheries.

All comments received are a part of the public record and will generally be posted for public viewing on [www.regulations.gov](http://www.regulations.gov) without change.

# Submit Public Comment (Closes December 15, 2022)



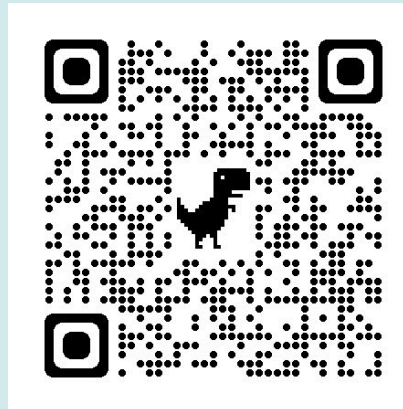
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**Public comment  
period closes on  
15 Dec 2022.**



Questions?  
(¿Preguntas?)



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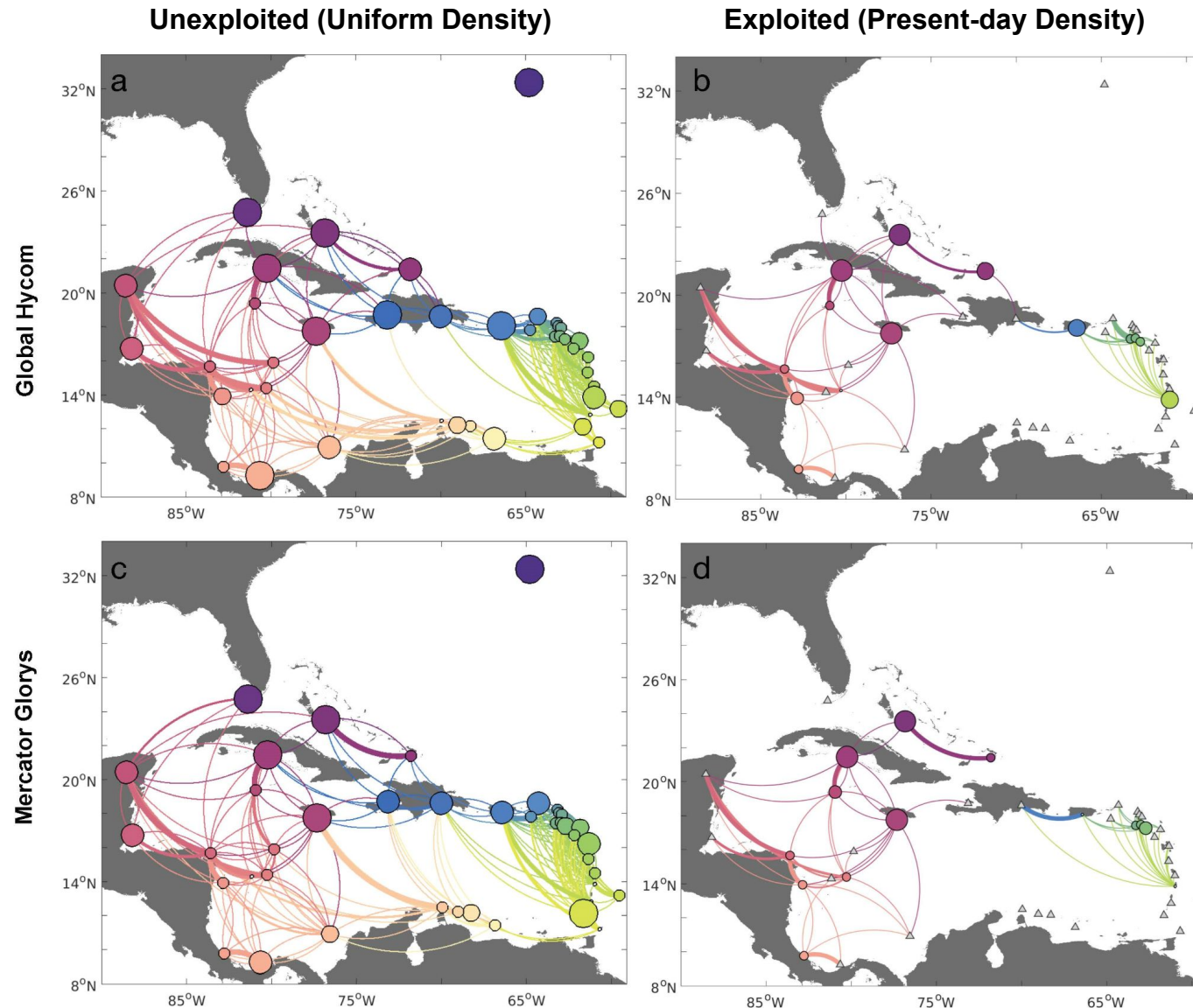
\*\*\*\*\*STOP PRESENTATION\*\*\*\*\*

# Status Review

- Evaluates updated data from 47 countries and territories
- Assimilates ~360 references (from multiple languages)
- Establishes clear density thresholds for reproductive viability; evaluates density surveys
  - Includes new data from 2012 to 2020
- Evaluates fisheries landings data (1950-2018) from the Food and Agriculture Organization (FAO)
  - Includes new data from 2012 to 2018
- Evaluates reconstructed landing histories (1950 -2016) from the Sea Around Us (SAU) project
- Evaluates results from recent genetic structure studies
- Novel simulation approach to reproductive dynamics (Farmer and Doer 2022)
  - Failure to reproduce at low densities due to factors beyond simple challenges with mate finding
- Novel hydrodynamic model approach to connectivity (Vaz et al. 2022)
  - Exchange of larvae across the population range has been dramatically interrupted by overexploitation relative to virgin stock patterns.



# Status Review - Conch Connectivity

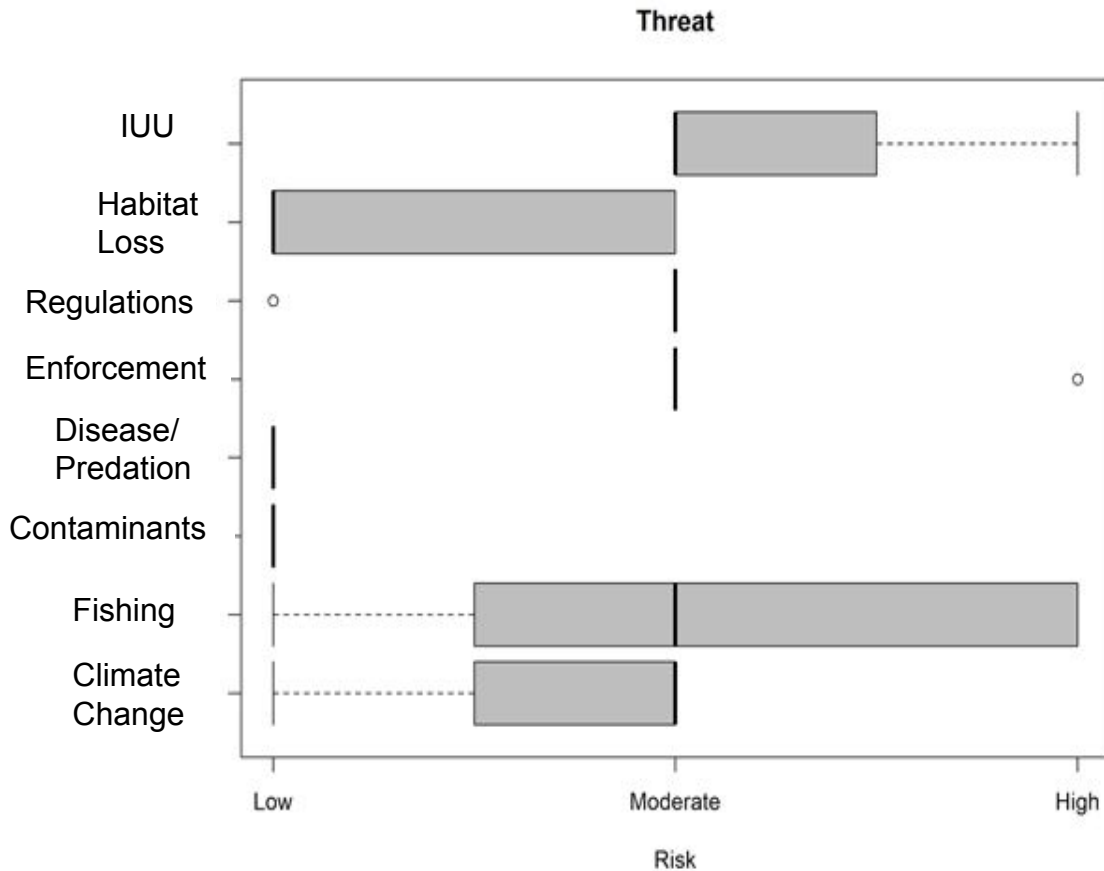


**Connectivity networks for queen conch.** Shows difference in connectivity patterns between theoretical unexploited stock “uniform density” and contemporary stock “present day density” reproductive output. Larvae are dispersed with two different hydrodynamic models (Glb-HyCOM, Mercator GLORYS12-V1). To interpret the estimated direction of larval flow between countries, the arcs are followed in a clockwise direction and the thickness of the lines represents the strength of larval flow; node sizes represent the probability of self-settlement. Countries with no reproductive output on the present day scenario are marked with a triangle.

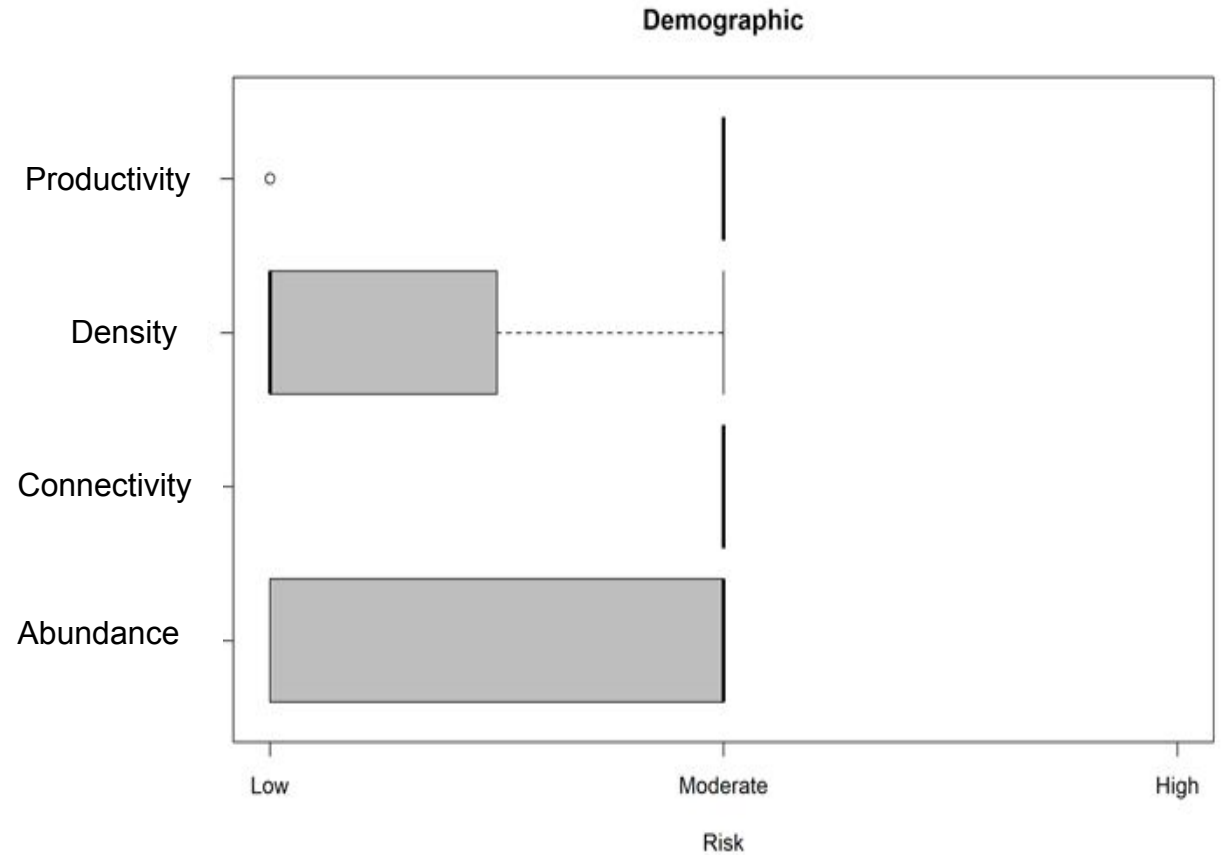
## Important Finding:

**Near complete break in larval connectivity between East and West Caribbean**

# Status Review - Extinction Risk Analysis



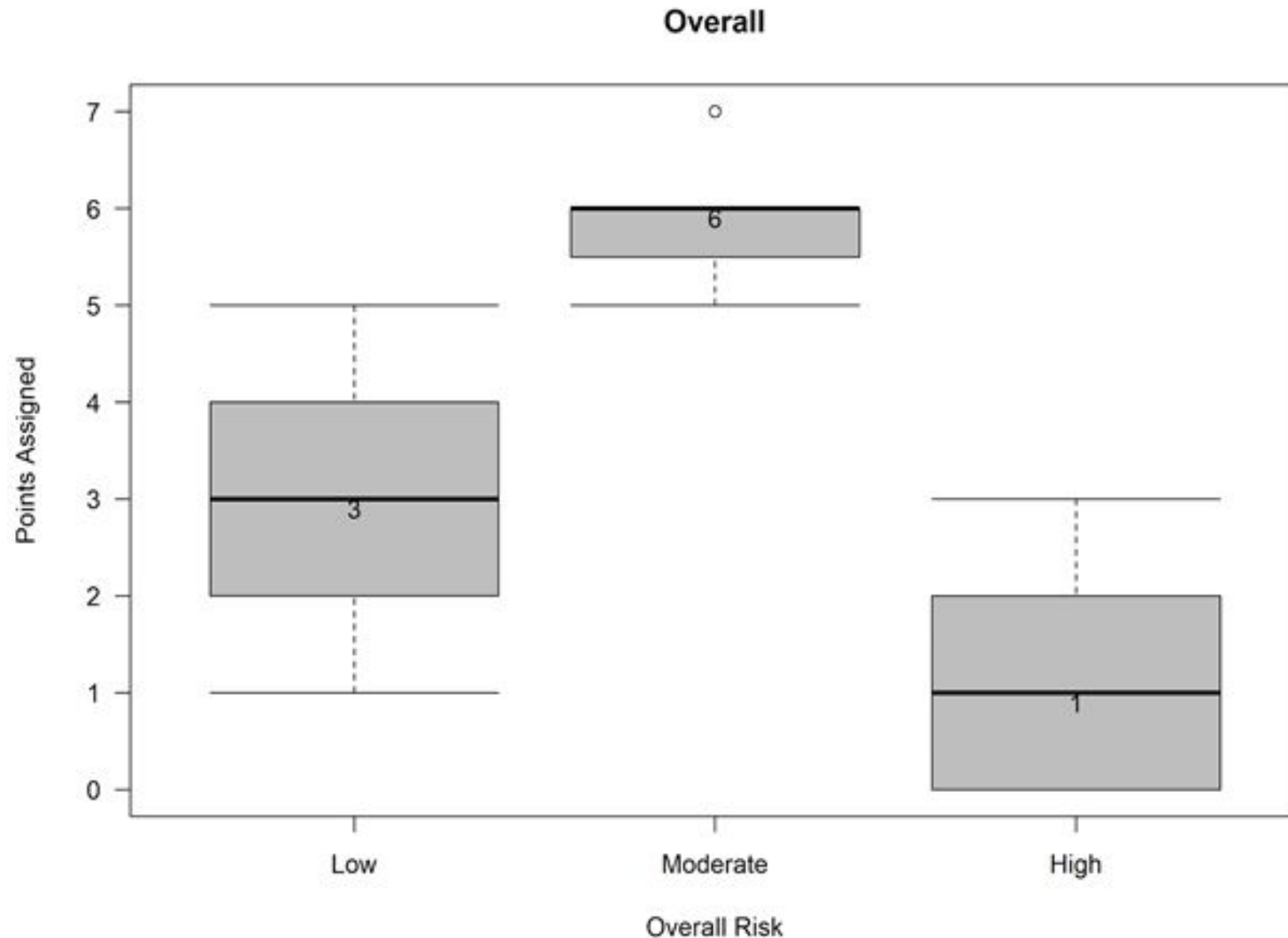
Factor B) Commercial/artisanal harvest;  
 Factor D) Illegal unreported, unregulated fishing; inadequacy  
 of regulatory measures,  
 Factor E) Climate change.



Spatial structure, connectivity, growth  
 rate, and productivity.



# Status Review - Overall Extinction Risk Analysis



**Moderate risk:** A species is at moderate risk of extinction if it is on a trajectory that puts it at a high level of extinction risk in the foreseeable future (high risk). A species may be at moderate risk of extinction due to current and/or projected threats or declining trends in abundance, productivity, spatial structure, or diversity. The appropriate time horizon for evaluating whether a species is more likely than not to be at high risk in the foreseeable future depends on various case- and species-specific factors.

41 (59%) of points assigned to “moderate risk” by 7 SRT members.

# Proposed Rule - Primary Threats to Queen Conch

- **Low Adult Densities** - Most jurisdictions (69%) below the minimum threshold (50 adult conch/ha) required to support reproduction
- **Overutilization** - Most jurisdictions (90%) fishing above an 8% exploitation rate and/or have adult densities <100 conch/ha, limiting population growth
- **Broken Connectivity** - Near complete break in connectivity between East and West Caribbean; many historical ecological corridors no longer functioning
- **Inadequacy of Existing Regulatory Mechanisms** - Significant issues with compliance, population monitoring, appropriateness of size metrics, enforcement, and poaching
- **Climate Change** - may have significant implications for conch in the future (2100), resulting in reduced reproduction, increased larval mortality rates, weaker shells, and shifts in ocean circulation patterns.

# Status Review - Spawning Densities

## Thresholds defined in Status Review

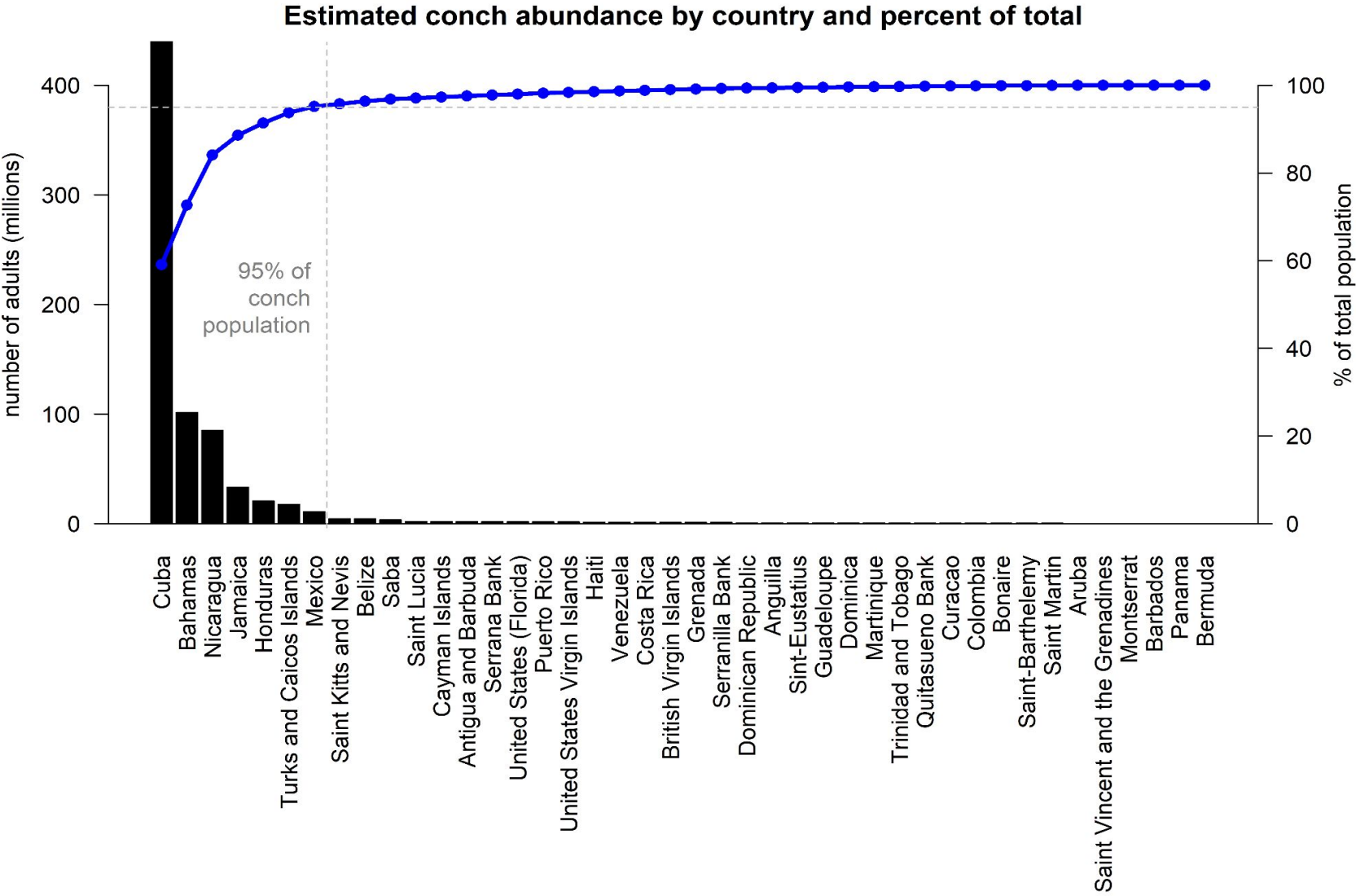
- **>100 adult conch/ ha** - supports reproductive activity resulting in population growth.
- **50-99 adult conch/ ha** - reduced reproductive activity resulting in minimal population growth.
- **<50 adult conch/ ha** - not reproductively active due to low adult encounter rates or mate finding. This threshold is largely recognized as an absolute minimum required to support mate-finding and thus reproduction.



# Status Review - Major Findings

- **Abundance**: ~0.5 to 1.5 billion adults
  - *Mostly in The Bahamas, Jamaica, Turks & Caicos, Cuba, Nicaragua, Honduras, and Mexico*
- **Landings**: >30 million conch/year
  - *Not including high subsistence, recreational, and IUU fishing*
- **Density**: ~69% of range-states <50 adults/ha; ~79% <100 adults/ha; ~21% > 100 adults/ha
  - *In many countries, conch fishing is continuing above the CITES/FAO-recommended exploitation (8%) threshold despite population declines to very low densities.*
- **Connectivity**: Near complete break in larval connectivity between E/W Caribbean
  - *Many important ecological corridors no longer functional, most source populations have collapsed.*
- **Management**: Inadequate control of harvest
  - *Significant issues with compliance, population monitoring, appropriateness of size metrics, enforcement, and poaching*
- **Climate Change**: Risk of decreased reproduction, increased larval mortality, increased predation

# Status Review - Conch Abundance



**Estimated conch abundance by country.**  
*Vertical dashed line indicates the countries that account for 95 percent of the total estimated population of adult queen conch.*

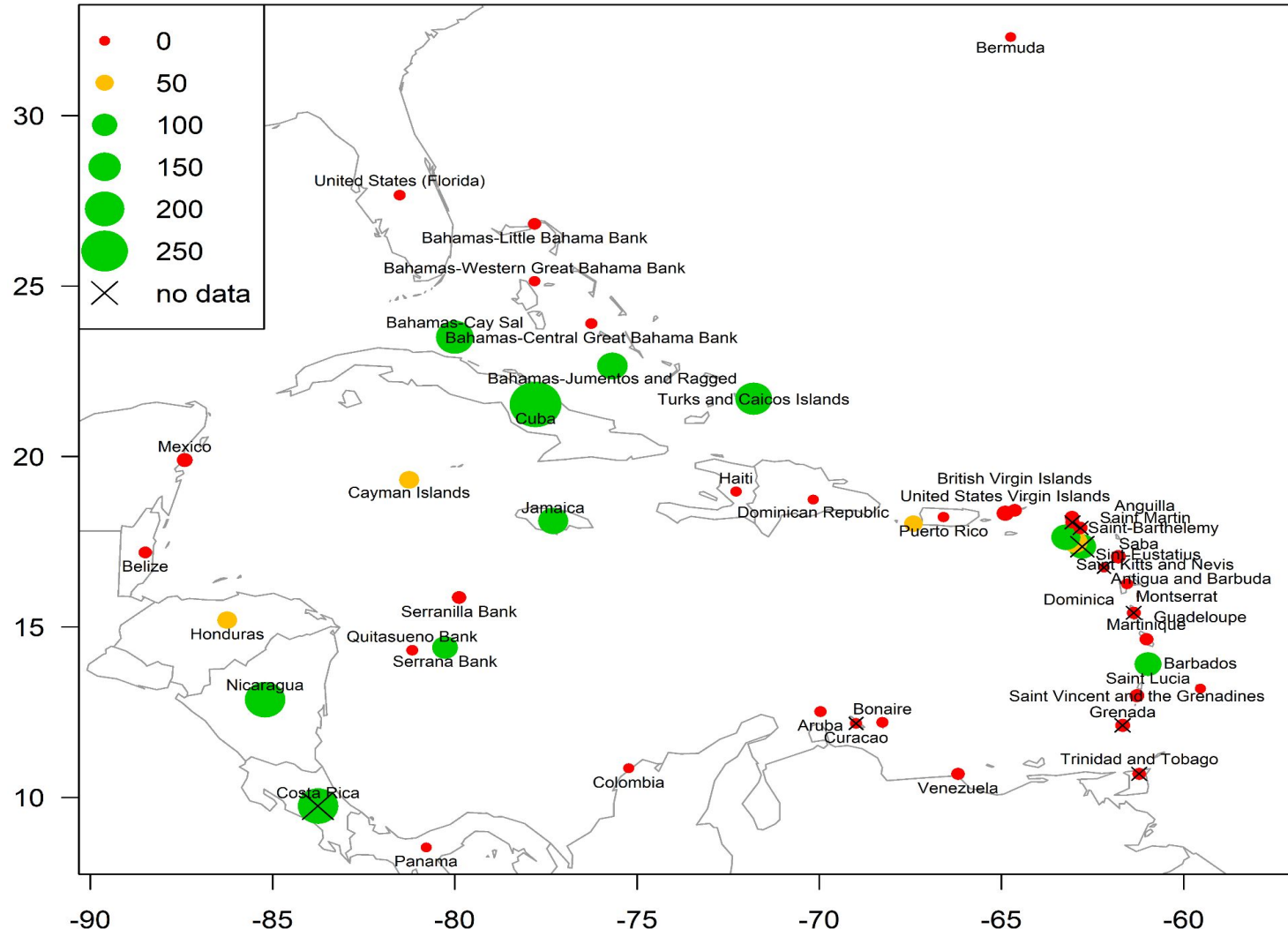
**7 countries contain >95% of the abundance**





# Status Review - Conch Densities

Adult conch densities per hectare



## Estimated adult conch densities.

Countries without density data and relying on borrowed values are indicated with an X. Where densities are summarized on a country level, the points appear at the approximate center point of the country; where densities are summarized on a subregional level the points appear at the location of fishing banks or subregions.




~69% with <50 adults/ha

~79% <100 adults/ha

~21% > 100 adults/ha

# Queen Conch ESA Background



- **February 27, 2012:** We received a petition from WildEarth Guardians to list the queen conch as threatened or endangered throughout all or a significant portion of their range under the ESA.
- **August 27, 2012:** NOAA Fisheries determined that the petitioned action may be warranted and published a positive 90-day finding in the Federal Register and opened a **60-day public comment period** (77 FR 51763). 
- **November 5, 2014:** NOAA Fisheries determined that listing queen conch as threatened or endangered under the ESA was not warranted and published the determination in the Federal Register (79 FR 65628).
- **July 27, 2016:** WildEarth Guardians and Friends of Animals (Plaintiffs) filed a lawsuit, in the U.S. District Court for the District of Columbia, challenging NOAA Fisheries decision not to list queen conch under the ESA.
- **August 26, 2019:** the Court vacated NOAA Fisheries determination that listing queen conch was not warranted and remanded the determination back to the NOAA Fisheries.
- **December 06, 2019:** NOAA Fisheries announced the initiation of a status review of queen conch to determine whether listing the species as endangered or threatened under the ESA was warranted. At that time we also opened a **60-day public comment period**. 
- **December 2019 to May 2022:** NOAA Fisheries assembled a status review team who conducted a comprehensive review of available information to develop a status review report.
- **May 2022:** NOAA Fisheries finalized the ESA Queen Conch Status Review Report.
- **September 8, 2022:** NOAA Fisheries published a proposed rule to list the queen conch as threatened under the ESA and opened a **60-day public comment** period through November 7, 2022. 
- **November 10, 2022:** NOAA Fisheries announced a public hearing and **reopened the public comment period until Dec 15, 2022.** 