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Queen Conch

ESA Final Listing & Next Steps

April 23, 2024
CFMC Meeting
NOAA Fisheries - Southeast Regional Office

Key Messages

- On February 14th 2024, NOAA Fisheries published a final listing determination to list the queen conch (*aliger gigas*) as threatened under the Endangered Species Act (ESA).
- A threatened listing does not automatically assign protective regulations to the species, but protections are afforded under section 7 of the ESA.
 - Federal agencies must ensure that activities they carry out, fund, or authorize are not likely to jeopardize the continued existence of the species
- Next steps will include the designation of critical habitat, section 7 consultations, and the initiation of recovery planning
 - Stakeholder engagement
 - Protective regulations - under section 4(d)
- A threatened species does not automatically become an endangered species over time. A separate assessment would need to demonstrate that the species is presently at risk of extinction to warrant an endangered listing.



How Do Species Become Protected Under the Endangered Species Act?

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 cannot be considered*** in making *species listing determinations*.



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.”

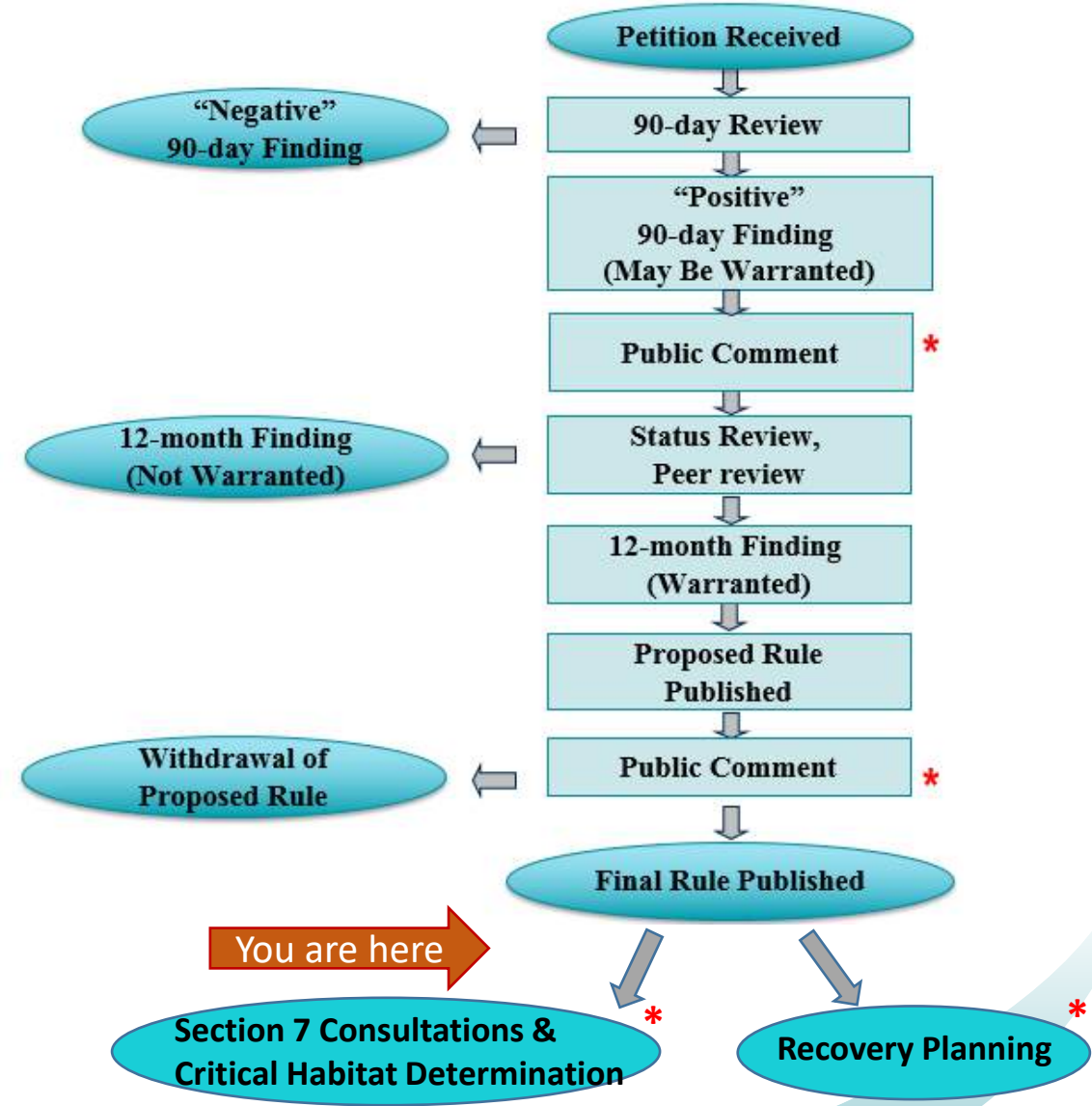
- A “threatened species” is interpreted as a species that is **not currently at risk of extinction but is likely to become so in the foreseeable future**.
- Threatened species do not automatically receive automatic protections against take.

A threatened designation does not automatically become an endangered listing over time. A further evaluation would need to demonstrate that the species is *presently* at risk of extinction to warrant an endangered listing.



ESA Listing Process & Next steps

- **February 27, 2012:** We received a petition from WildEarth Guardians to list the queen conch as threatened or endangered under the ESA.
- **August 27, 2012:** NOAA Fisheries determined that the petitioned action may be warranted ([77 FR 51763](#)).
- **November 5, 2014:** NOAA Fisheries determined that listing queen conch as threatened or endangered under the ESA was not ([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.
- **December 06, 2019:** NOAA Fisheries announced the initiation of a status review of queen conch.
- **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.
- **November 10, 2022:** NOAA Fisheries announced a public hearing and **reopened the public comment period until Dec 15, 2022.**
- **February 14, 2024:** NOAA Fisheries published a final rule to list the queen conch as threatened under the ESA.



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 to Final Rule

- Key findings from status review were used to inform our proposed listing and ultimately our final listing determination
 - Status review found that queen conch are at moderate risk of extinction throughout their range
 - Public comments did not provide new data outside the range of the data that was considered in the status review
- 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.

Does listing the queen conch under the ESA create new prohibitions?

The prohibitions listed under section 9(a)(1) of the ESA automatically apply when a species is listed as endangered, but not when a species is listed as threatened.



Section 9(a)(1) of the ESA prohibits any person subject to the jurisdiction of the United States from:

- (a) importing any such species into, or exporting any such species from the United States
- (b) taking any such species within the United States or the territorial sea of the United States
- (c) taking any such species upon the high seas
- (d) possessing, selling, delivering, carrying, transporting, or shipping, by any means whatsoever, any such species that was illegally taken
- (e) delivering, receiving, carrying, transporting, or shipping in interstate or foreign commerce, by any means whatsoever and in the course of commercial activity, any such species
- (f) selling or offering for sale in interstate or foreign commerce any such species; or
- (g) violating any regulation pertaining to such species or to any threatened species of fish or wildlife

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.**



Protective Regulations under ESA Section 4(d)



*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 final rule does not establish any new prohibitions on conch harvest for these or other jurisdictions at this time.** Harvesting queen conch is currently prohibited in Florida.*

We intend to develop new protective regulations **deemed necessary and advisable for the conservation of threatened species**, under Section 4(d) of the ESA (e.g., “4(d) Rule”).

- 4(d) rules allows us to **customize prohibitions and regulate activities to provide for the conservation of threatened species.**
- These customized regulations may prohibit any or all acts prohibited under section 9(a)(1)
- Any future 4(d) rule would go through a **separate notice and public comment period**
- *We are actively seeking **input from stakeholders** to develop effective regulations to promote recovery*

Between domestic harvest (~330,000 lbs) and imports (~2.139 million lbs), which in 2022 represented over 76% of the global total, the United States has a major role to play in the recovery of this species.



What's Next?

- ★ **Section 7 Consultations:** The species will now be considered in all section 7 consultations
- ★ **Recovery Planning & 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.
 - The U.S. Caribbean contains just **0.36%** of the estimated range-wide adult population and **3.69%** of the available habitat for the species; however, it provides important connectivity between the Eastern and Western Caribbean.
 - 8 in-person **workshops** (4 in U.S. jurisdictions) and several virtual workshops currently being planned to solicit stakeholder input and suggestions towards effective management and recovery actions to promote range-wide recovery.
- ★ **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.

Science!

Current projects underway from NOAA Fisheries

- Puerto Rico genetic study (PIs: Doerr & Tzadik, SEFSC & SERO)
- Caribbean-wide genetic connectivity study (PIs: Doerr & Browder, SEFSC)
- Evaluation of fisheries in the US Caribbean to inform stock assessments and management (PIs: Doerr & Agar, SEFSC)
- Port Everglades population assessment (PI: Doerr)

Academic Researchers Currently Studying Queen Conch

- Saltonstall-Kennedy Grant – Community Based Queen Conch Aquaculture in Puerto Rico for Restoration and Sustainable Seafood; PI: Megan Davis & Raimundo Espinoza – Florida Atlantic University, Conservacion ConCiencia
- Andrew Kough – Shedd Aquarium

ESA Section 6 Opportunities



Recovery vs. Rebuilding

- Rebuilding Plan (MSA) vs. Recovery Plan (ESA)
 - The MSA requires overfished stocks to have **rebuilding plans**. These plans are designed to increase the stock size to a sustainable level. Rebuilding measures usually include reducing catch levels or closing off areas to fishing, sometimes for several years.
 - Section 4(f) of the ESA directs NOAA Fisheries to develop and implement **recovery plans** for threatened and endangered species, unless such a plan would not promote conservation of the species.

The goal of a recovery plan is to establish criteria for delisting the species by identifying actions and strategies to better understand population demographics while reducing or eliminating threats.



Photo: Alexander Tewfik, Wildlife Conservation Society



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The road to recovery

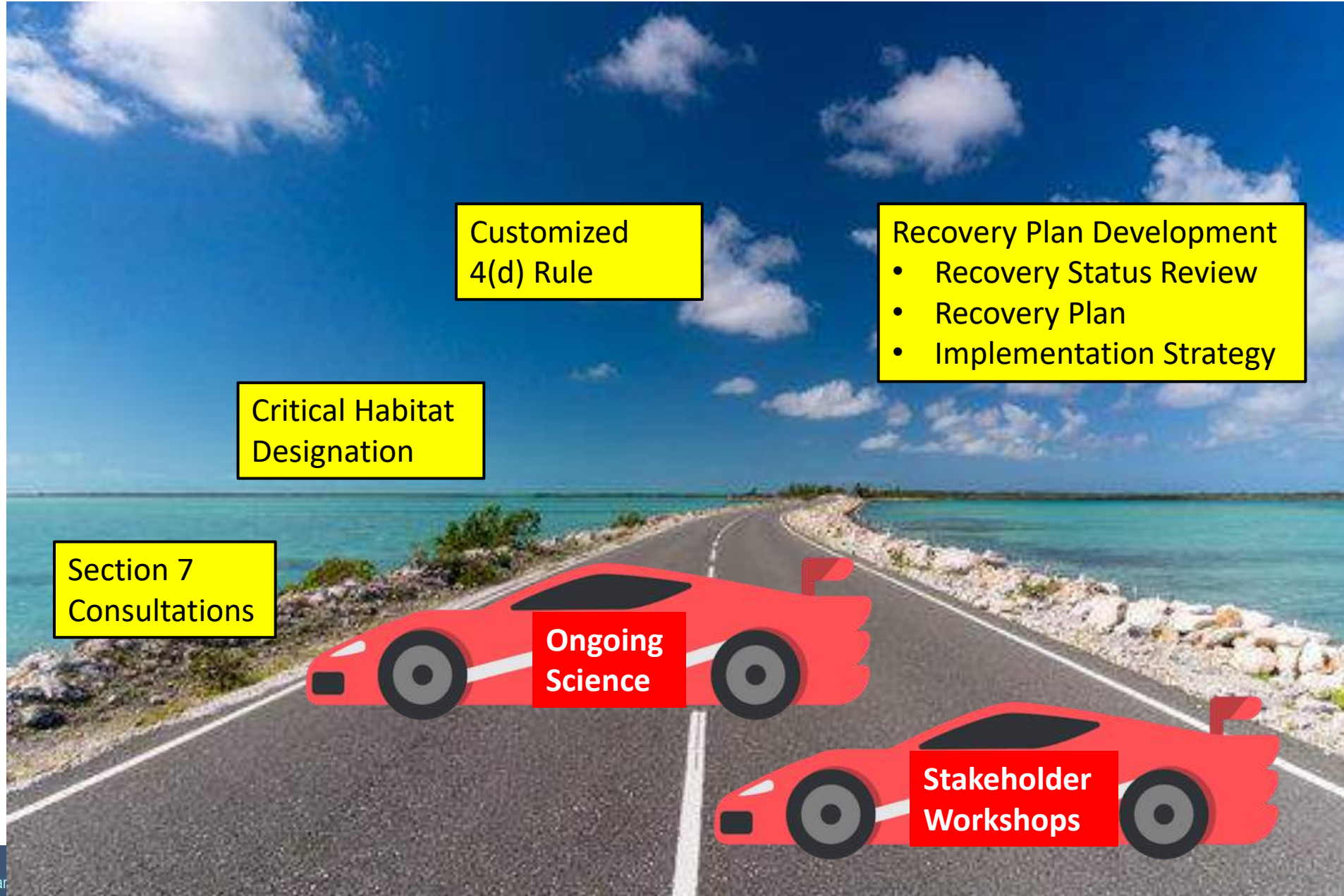


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The road to recovery



The road to recovery



Queen Conch Recovery Workshop

East Coast, PR
Tuesday, 7/May/2024

3pm-7pm
Centro Comunal Benito Ubiles
Calle La Picúa, Punta Santiago
Humacao, Puerto Rico

West Coast, PR
Thursday, 9/May/2024

2pm-6pm
Biblioteca Municipal
Blanca E. Colberg Rodriguez
Calle José de Diego, Cabo Rojo
Puerto Rico

NOAA Fisheries has listed queen conch as threatened under the Endangered Species Act and is now in the process of developing a recovery plan for queen conch. This includes hosting a series of workshops throughout the Caribbean, including Puerto Rico, U.S. Virgin Islands, and Florida. Please join us and participate in a dynamic workshop focused on identifying recovery strategies for queen conch. Your participation is an important and essential part of this process!



For more information contact Oran Tzadik at +1 (813) 906-0353.

Taller Sobre Recuperación del Carrucho

Área Este
Martes, 7/mayo/2024

3pm-7pm
Centro Comunal Benito Ubiles
Calle La Picúa, Punta Santiago
Humacao, Puerto Rico

Área Oeste
Jueves, 9/mayo/2024

2pm-6pm
Biblioteca Municipal
Blanca E. Colberg Rodriguez
Calle José de Diego, Cabo Rojo

El Servicio Nacional de Pesca Marina (NOAA Fisheries) incluyó el carrucho como especie amenazada según la Ley de Especies en Peligro de Extinción. Ahora, NOAA Fisheries está en el proceso de desarrollar un plan de recuperación para el carrucho, y estará llevando a cabo una serie de talleres en Puerto Rico y las Islas Virgenes Estadounidenses. Acompáñanos y participa de este taller dinámico con el propósito de identificar estrategias de recuperación para el carrucho. ¡Tu participación es una parte importante e integral de este proceso!



Para más información, pueden llamar a Oran Tzadik al +1 (813) 906-0353.

Queen Conch Recovery Workshop in the U.S. Virgin Islands



- The National Marine Fisheries Service (NOAA Fisheries) listed queen conch (*Aliger gigas*) as a "threatened species" under the Endangered Species Act. NOAA Fisheries is in the process of developing a recovery plan for this species.
- Please join us to identify and discuss recovery strategies for the queen conch.
- Your participation is an important and integral part of this process!

Time & Date TBD

For more information contact Oran Tzadik +1 (813)906-0353

Questions? (*¿Preguntas?*)



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).**

- CO₂ 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

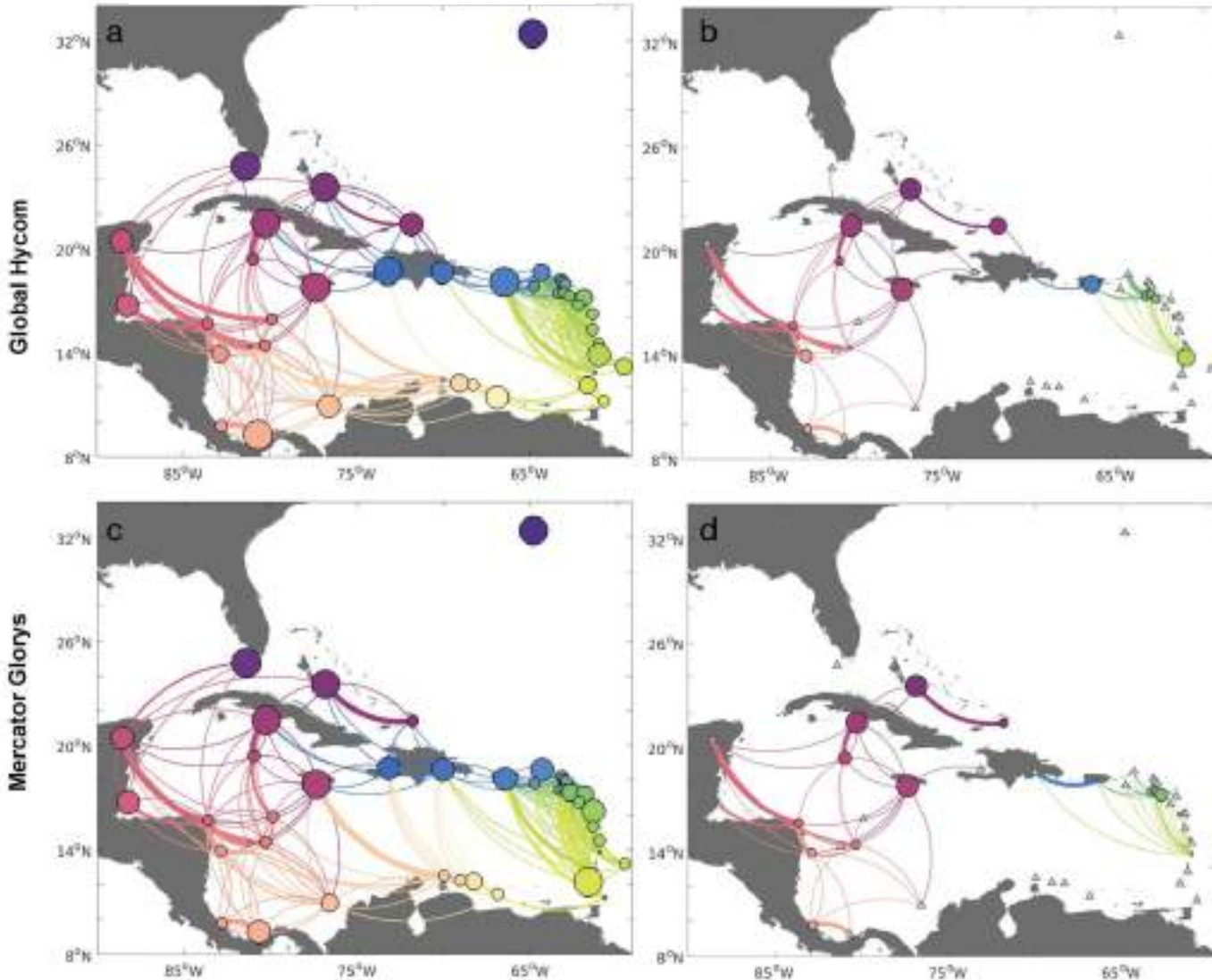
Factor C: *Disease or Predation.*

- 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.

Status Review - Conch Connectivity

Unexploited (Uniform Density)

Exploited (Present-day Density)

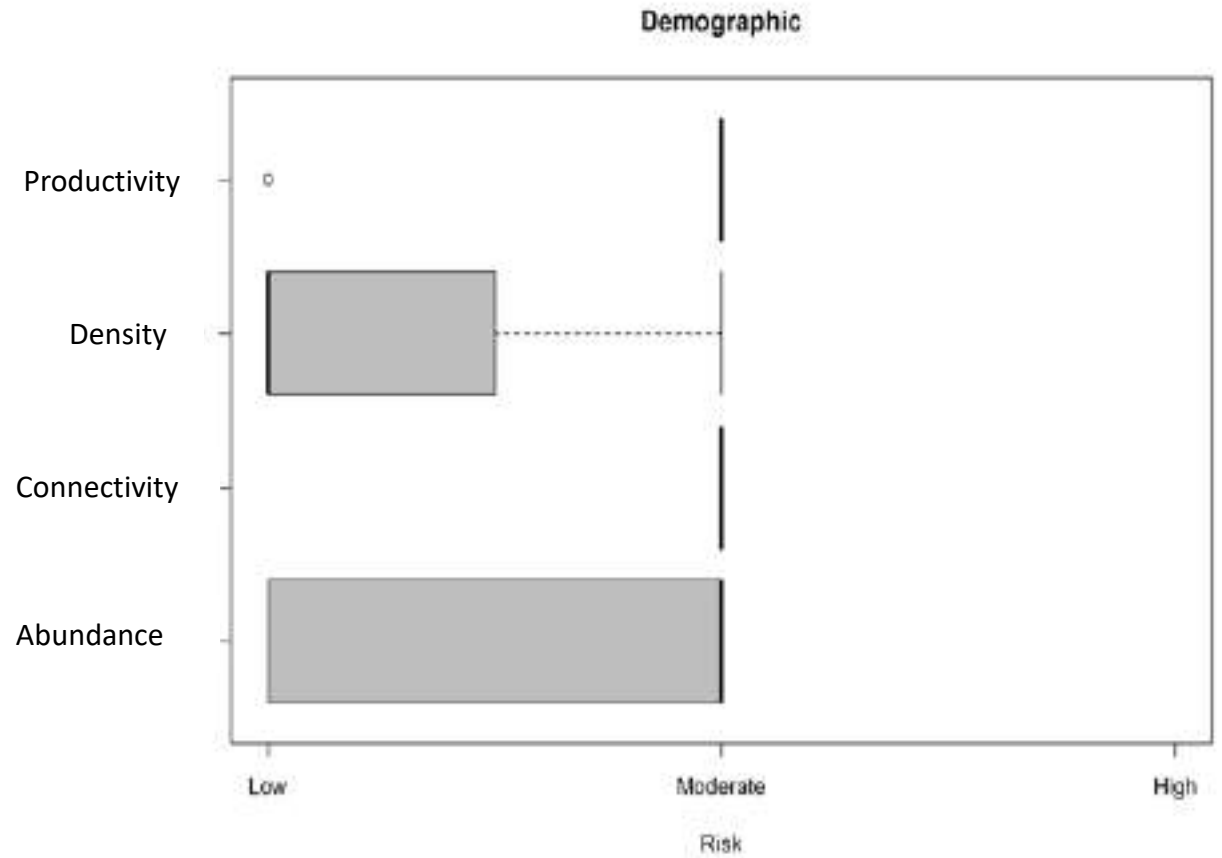
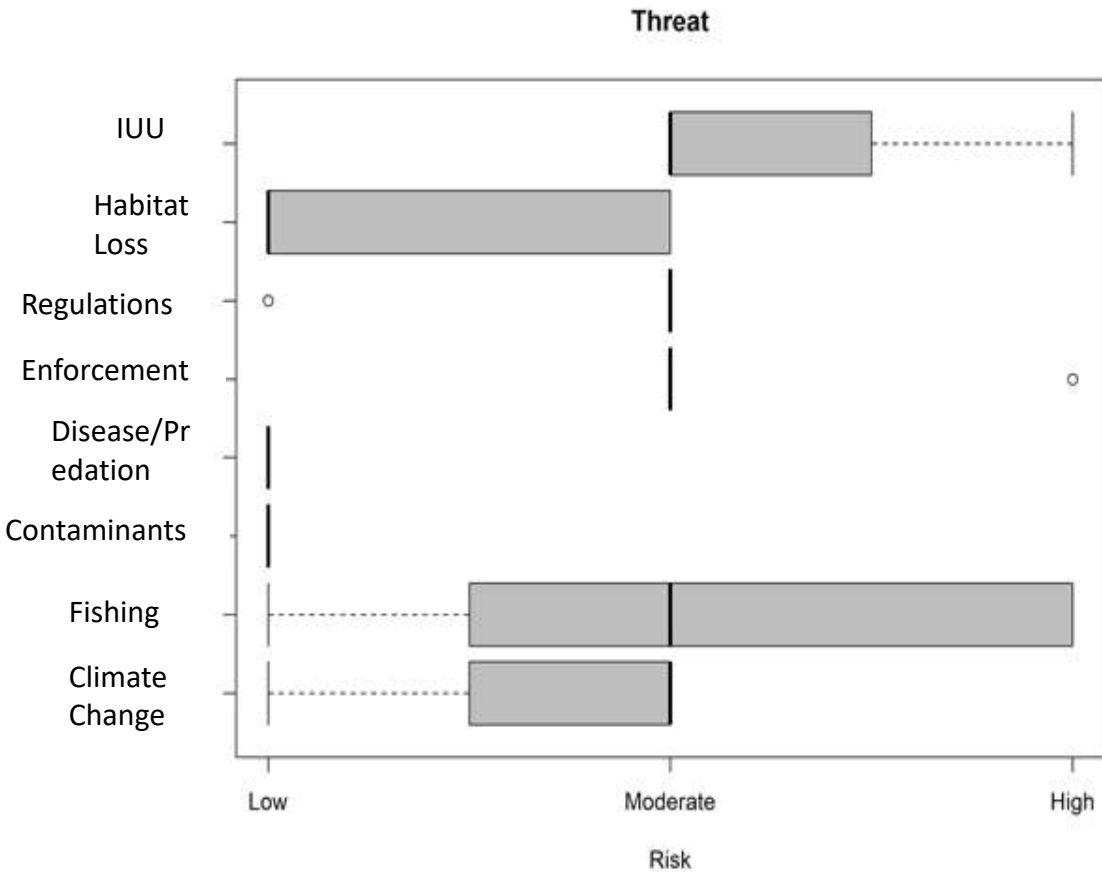


Connectivity networks for queen conch. Shows difference in connectivity patterns between theoretical unexploited stock “uniform density” and contemporary stock “present day density” reproductive output. Larvae are dispersed with two different hydrodynamic models (Glb-HyCOM, Mercator GLORYS12-V1). To 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

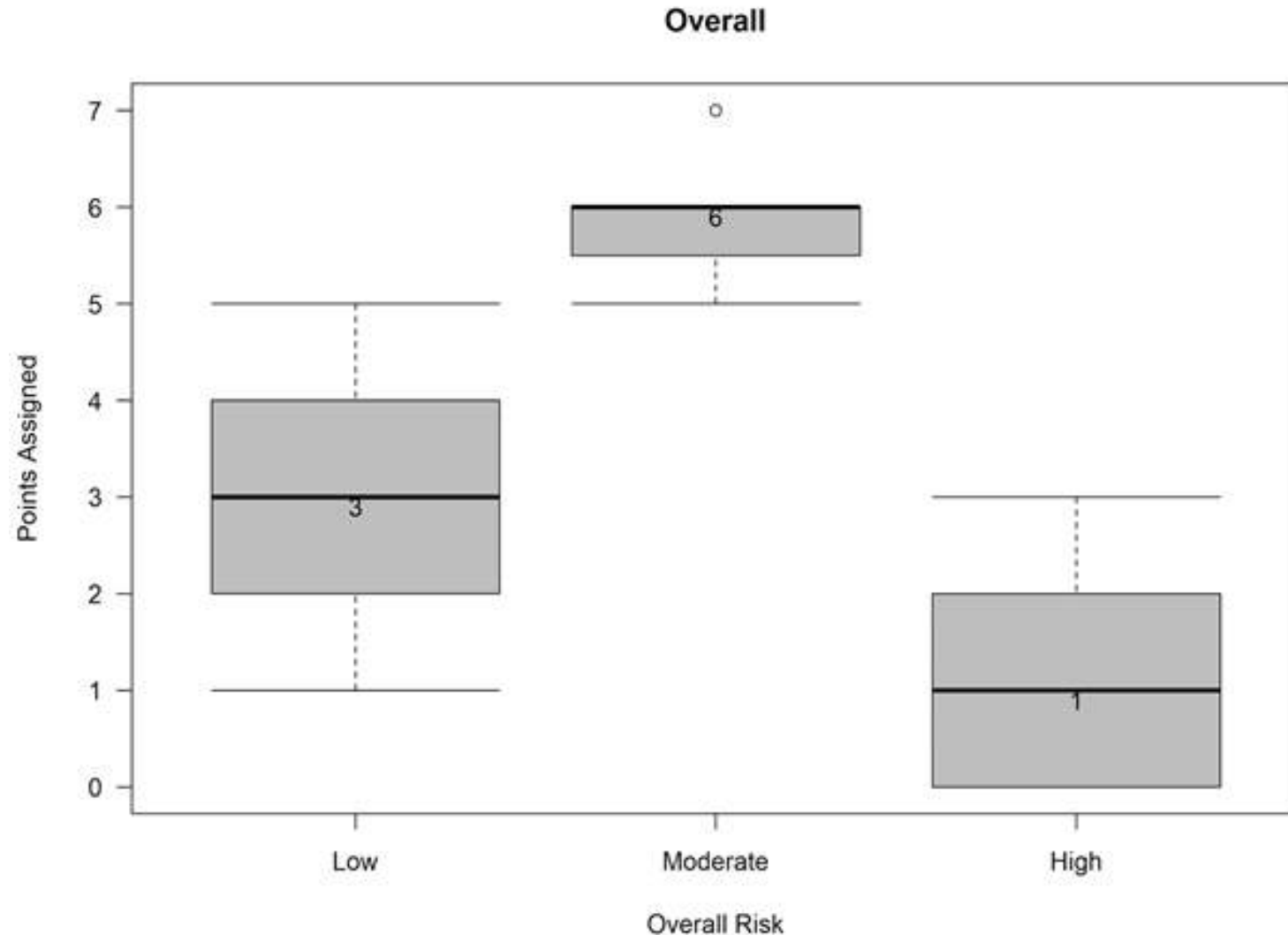


Factor B) Commercial/artisanal harvest;
 Factor D) Illegal unreported, unregulated fishing;
 inadequacy of regulatory measures,
 Factor E) Climate change.

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

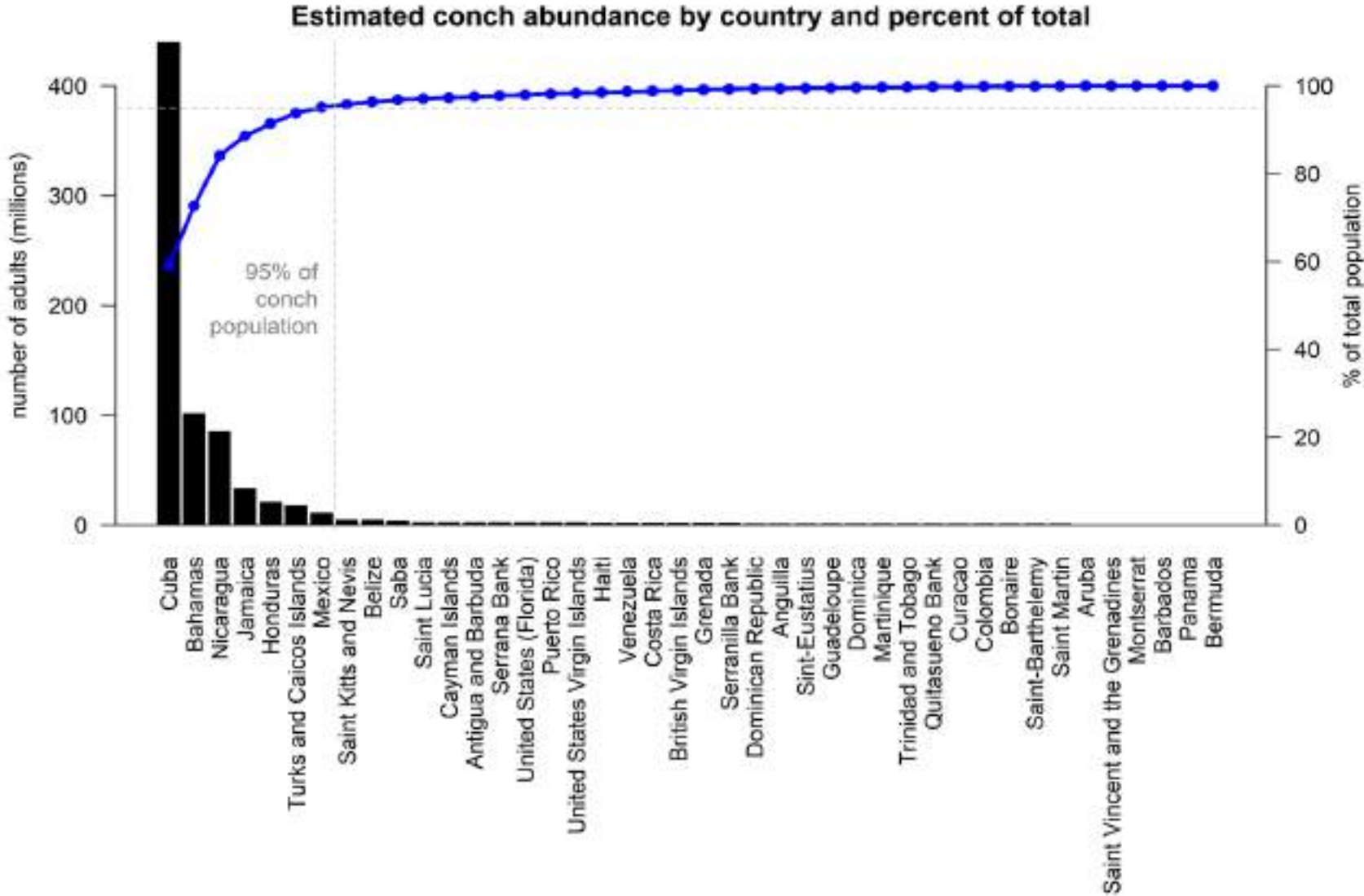
- **>100 adult conch/ ha** - supports reproductive activity resulting in population growth.
- **50-99 adult conch/ ha** - reduced reproductive activity resulting in minimal population growth.
- **<50 adult conch/ ha** - not reproductively active due to low adult encounter rates or mate finding. This 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

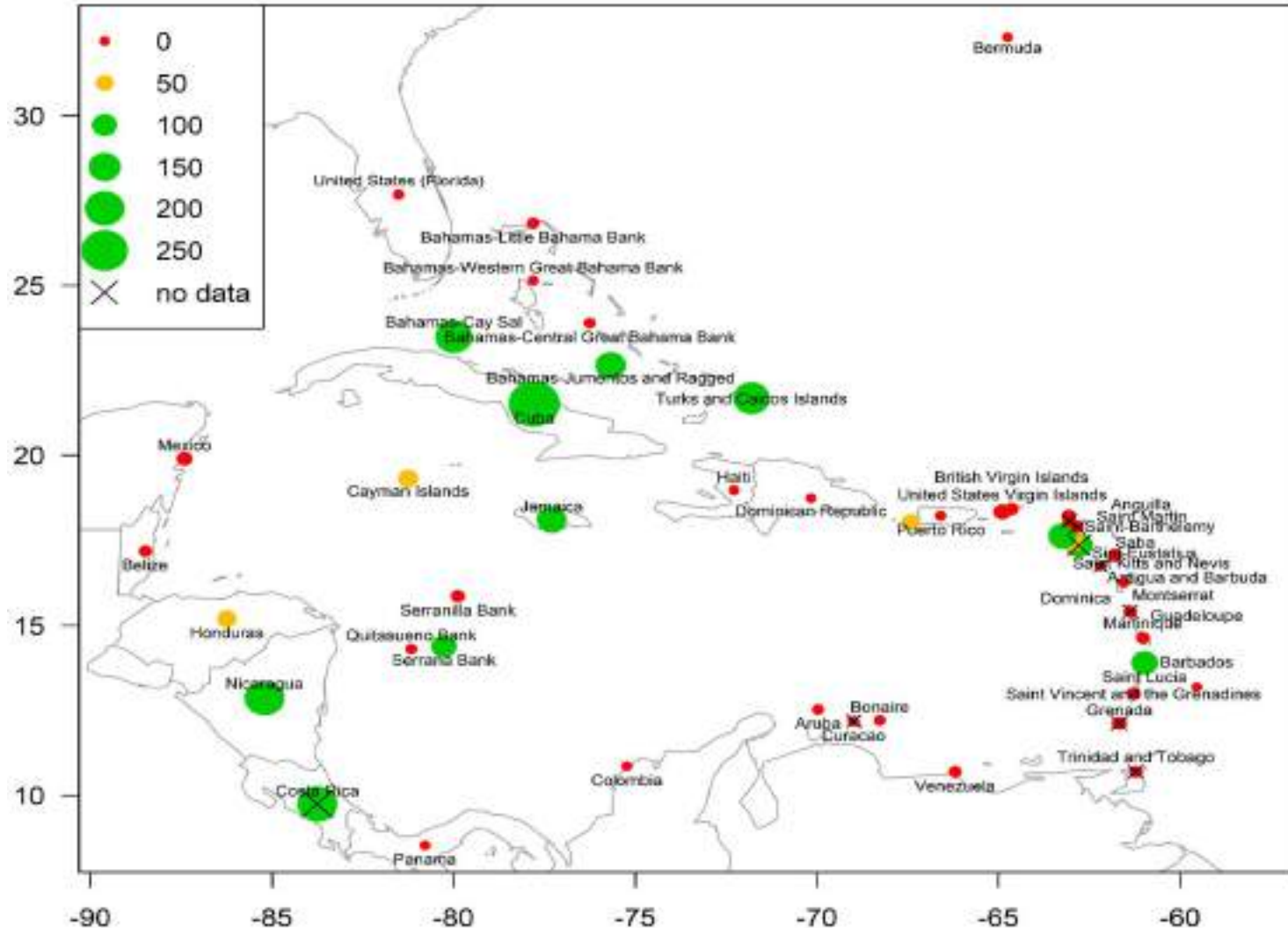


Estimated conch abundance by country. Vertical dashed line indicates the countries that account for 95 percent of the total estimated population of adult queen conch.

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



Comments received from the CFMC regarding the proposed rule

- 1) *Historical and current distribution and abundance of this species throughout it's range*
 - a) *Deepwater populations*
 - b) *Viable assessment throughout the range*
- 2) *Historical and current population trends*
 - a) *Very little FIM data*
 - b) *Data trends in the USVI and PR from FIM and FDM suggest healthy populations*
- 3) *Biological information (life history, genetics, population connectivity)*
 - a) *References provided*
- 4) *Landings and trade data*
 - a) *References provided*
- 5) *Management, regulatory, and enforcement information*
 - a) *Adequate management measures from the CFMC queen conch FMPs of 2005, and 2011*