

# Queen Conch Survey, Construction Conditions, Relocation and Reporting Guidelines

NOAA Fisheries Southeast Regional Office

September 2024

**Purpose:** The following guidelines and construction conditions apply to informal expedited consultations for minor, routine construction projects (i.e., shoreline stabilization or seawall repair; hydraulic dredging; dock construction or repair; pier stabilization or reconstruction; boat lift installation or repair; scientific instrument, navigation marker, or buoy installation or maintenance; or marine debris removal) in NOAA Fisheries Southeast Regional Office's (SERO) Protected Resources Division's (PRD's) recommended queen conch [consultation areas](#), and the temporary or permanent relocation of a limited number of queen conch. These guidelines do not apply to projects with a footprint<sup>1</sup> exceeding 1000 m<sup>2</sup> (10764 ft<sup>2</sup>), nor do they apply to any mechanical dredging activities, due to the potential adverse impacts caused by the resuspension of fine sediments. These guidelines also do not apply to projects with more than 10 juvenile queen conch or more than 10 adult queen conch within the project survey area (defined below). For such activities, a formal consultation with NOAA Fisheries SERO PRD may be required. See Flowchart in Appendix 1.

*Note: These guidelines are not required for projects with a footprint of <5 m<sup>2</sup> (<53.8 ft<sup>2</sup>) or for non-mechanical, manual in-water work where conditions (e.g., visibility, sea state) are such that Applicants can ensure no effect to queen conch.*

These guidelines outline procedures for the following:

1. Pre-Construction Survey Protocol
2. During-Construction Survey Protocol
3. Relocation Guidelines
4. Reporting Guidelines

## 1. Pre-Construction Survey Protocol

Applicants must conduct a pre-construction survey within 90 days of the initiation of in-water work, to determine if their project area contains queen conch habitat. A pre-construction survey is useful to determine local abundance and whether the action area is in suitable queen conch habitat. Projects in densely populated action areas will require additional measures and further consultation.

Queen conch surveys shall be conducted for projects in marine waters (i.e., projects occurring below mean high water (MHW), and salinities above 20 ppt), excluding man-made canals and channels, swash zones, and ocean dredged material disposal sites (ODMDS) in the following locations:

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<sup>1</sup> Project Footprint includes "all in-water and over-water aspects of the project, including areas that do not directly contact the benthos"

- Within the 61 m (200 ft) isobaths: (1) Southeast Florida and the Atlantic Ocean side of the Florida Keys from St. Lucie Inlet south to Key West; (2) Marquesas Keys; (3) Dry Tortugas; (4) Puerto Rico; (5) U.S. Virgin Islands (USVI); (6) Navassa Island; and (7) Flower Garden Banks National Marine Sanctuary.
- Within the 10 m (33 ft) isobaths on the Gulf of Mexico side of the Florida Keys from the Seven Mile Bridge (west end of Marathon) south to Key West.

Daily movement speeds of queen conch vary throughout the year, and queen conch distribution can vary seasonally and annually (Doerr & Hill 2018). However, queen conch generally do not travel far from habitats that provide forage and shelter (e.g., seagrass and algae beds). Therefore, in habitats where queen conch is expected to be present, a pre-construction survey is required prior to commencing any in-water work to determine the presence of queen conch (see boxes below detailing **Pre-Construction Survey Area** and **Queen Conch Survey Methods**). The pre-construction survey will include the entire project area including a 12m (39ft)<sup>2</sup> buffer around the limits of construction.

*Note: Projects that solely entail the removal of objects from the seafloor, without any further alterations (e.g., debris removal, UXO removal) do not need to apply the above buffer to the survey area. Instead, a single diver survey (as described below) is sufficient if no other activities are taking place.*

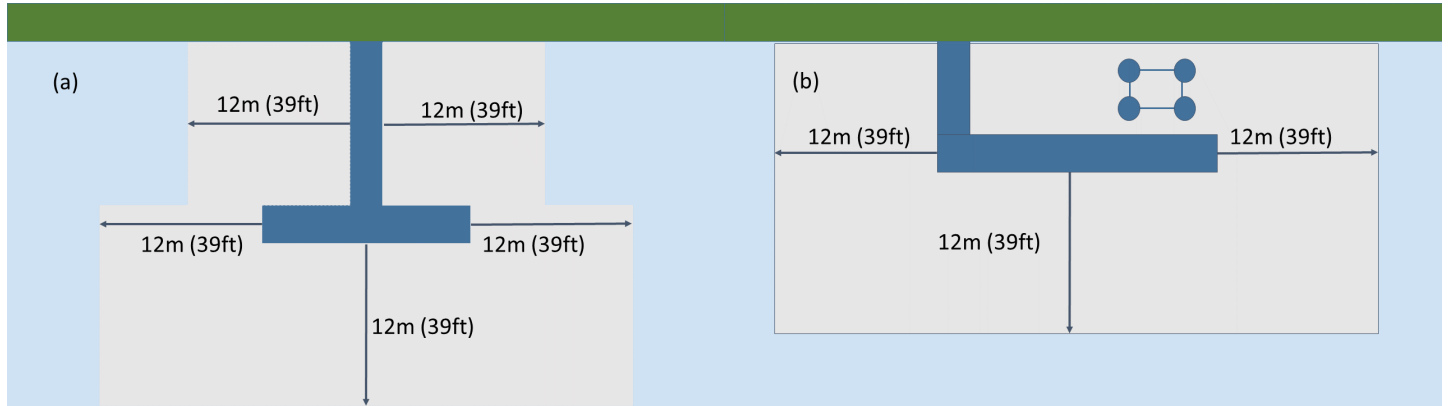
- If no queen conch are found in the pre-construction survey area, it is extremely unlikely they will move into the area within 90 days.<sup>3</sup> The project may continue under the existing consultation and the survey will remain valid for all in-water work below MHW for 90 days from the start date of the survey. If the project extends beyond the 90 day timeframe, then another survey will be required to provide consultation coverage for an additional 90 days.
- If queen conch were present in the survey area during the pre-construction survey, then the applicant must relocate the queen conch or allow them to move out of the survey area on their own volition prior to beginning work (see **2. During-Construction Survey Protocol**).

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<sup>2</sup> Based on the upper 95% confidence interval of “high” movement speed from Doerr & Hill (2018)

<sup>3</sup> Female queen conch reproduction is highly variable but typically around four times per year (Davis et al. 1984). They may reproduce year-round (Egan 1985, Aldana-Aranda et al. 2014, Table 1 in Horn et al. 2022), and in some locations, migrate to/from spawning aggregation sites (Hesse 1979, Weil and Laughlin 1984, Coulston et al. 1987, Stoner and Sandt 1992, Acosta 2001, Bissada 2011). Based on this information, we believe a pre-construction survey finding no conch supports the assumption that queen conch are extremely unlikely to be present in the survey area for the next 90 days (~365 days/4 mating events with associated migrations ≈ 90 days).

**Pre-Construction Survey Area** – Marine waters covered by the project footprint (i.e., the immediate area directly impacted by the project, not including broader areas indirectly affected by noise or vessel transit routes) with a buffer of 12m (39ft) around the perimeter in all directions (see Figure 1).

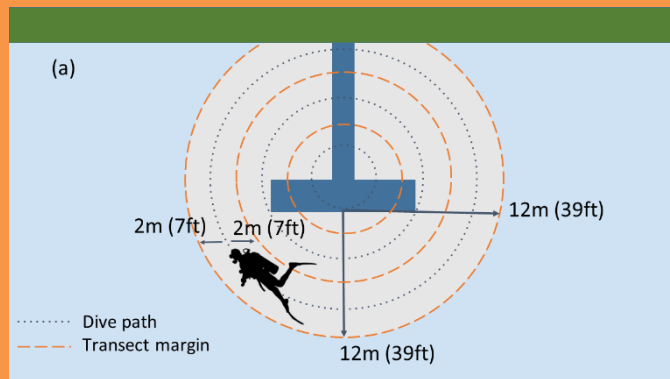


**Figure 1.** *Survey Area including Buffer* – (a) Example of a T-shaped dock (dark blue) with a 12m (39ft) buffer area (grey) surrounding the project footprint. (b) Example of a marginal L-shaped dock and boat lift (dark blue) with a 12m (39ft) buffer area surrounding the project footprint. Shoreline shown in green. Images not to scale.

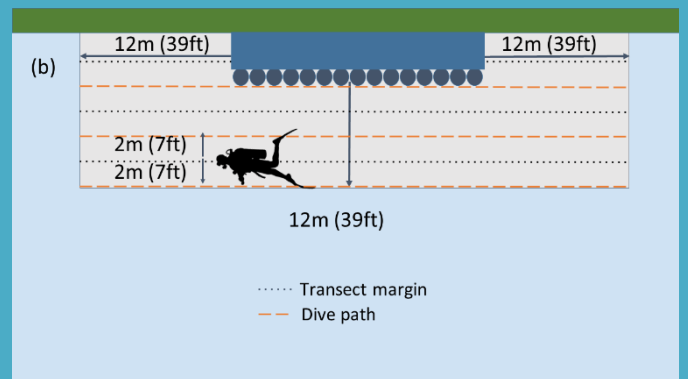
**Queen Conch Survey Methods** – Surveys may be conducted using **radial** or **belt transect** survey methods, providing 100% coverage of survey area. Presence of queen conch (juveniles and adults) should be recorded and reported to NOAA Fisheries (see **Reporting Guidelines**, below).

- For projects in waters less than 100ft deep, a survey shall be done by qualified individuals able to identify queen conch.
- For deeper projects or in areas where dive safety may be of concern (e.g. areas of high vessel traffic), a camera may be used to survey for queen conch. Camera and video footage must be of high resolution with an HD format of 1920 x 1080 or above.

**Radial surveys** may be done for in-water projects provided the project footprint does not follow a linear trajectory along the coastline. Radial surveys are done following the roving dive survey method, expanding out in concentric circles. The transect width between concentric circles will be subject to visibility conditions; however, the width shall not exceed 2m (7ft) left and right of the surveyor.



**Belt transect surveys** may be done for any project layout, including shoreline projects that follow a linear trajectory along the coastline (e.g. seawalls, revetments). Belt transect surveys shall follow the same protocol outlined for the radial survey, with divers surveying a maximum distance of 2m (7ft) left and right of the belt transect.



## 2. During-Construction Survey Protocol

**If no pre-construction survey was conducted, or >90 days have elapsed since the most recent pre-construction survey, or queen conch were reported within the survey area during the pre-construction survey, then during-construction surveys are required.**

The primary threats to queen conch during construction activities include direct impacts from equipment, direct sedimentation, and resuspension of fine particles in the water column. **If queen conch are located during a survey, turbidity is anticipated, and the benthos contains silt, clay, very fine, and fine sands ( $\leq 0.25\text{mm}$  grain size), NOAA Fisheries recommends the use of turbidity curtains.**

### Survey Frequency and Area where queen conch are found –

- ***Projects with full-depth turbidity curtains*** – If a turbidity curtain completely enclosing the project footprint and extending from the surface to the seafloor<sup>4</sup> will be used throughout construction, a single survey before the beginning of in-water work is required. This survey should follow the **Queen Conch Survey Protocol** but need only cover the area to be contained within the turbidity curtain either immediately prior (within 12 hours) to curtain installation or any time after curtain installation but prior to the start of in-water work, under the assumption that conch beyond the project footprint will be unable to move past the turbidity curtain.
- ***Projects with no turbidity curtain or floating turbidity curtains*** – Applicants should conduct surveys following the **Queen Conch Survey Methods** with the following survey area, depending on the frequency of the surveys:
  - i. Initial Survey: Must be conducted prior to the start of in-water work and cover the project footprint plus a buffer of 12m (39ft) around the entire project footprint.
  - ii. Repeated Surveys:
    - Daily surveys: Must cover the buffer area [i.e., from the project footprint perimeter plus 12m (39ft)]; or
    - Every other day: Must cover 12m (39ft) in each direction around the project footprint perimeter [i.e., a total of 24m (78ft), or 12m (39ft) outside the project footprint perimeter and 12m (39ft) inside the perimeter]; or
    - Every third day: Must cover 24m (78ft) in each direction around the project footprint perimeter [i.e., a total of 48m (156ft), or 24m (78ft) outside the project footprint perimeter and 24m (78ft) inside the perimeter].
    - Surveys may not be conducted less frequently than every third work day, but may be discontinued during breaks in in-water work. If surveys are

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<sup>4</sup> NMFS recognizes that turbidity curtains making contact with the seafloor may damage the benthos. This should be avoided. However, if the turbidity curtain is not close enough to the seafloor to restrict conch movement into the project footprint (i.e., within 6 inches of the seafloor across the entire perimeter), surveys must be conducted under the guidance for floating turbidity curtains.

discontinued, a new Initial Survey must be conducted, followed by Repeated Surveys according to the schedule above.

### **During-Construction Survey Results and Construction Conditions –**

- If no queen conch are found in the Initial Survey, proceed with in-water work, and continue during-construction Repeated Surveys (see “Survey Frequency and Area”, above).
- If greater than 10 juvenile or greater than 10 adult queen conch are found, in-water work below MHWL may not begin and the applicant must contact the action agency and NOAA Fisheries for further guidance on how to initiate formal consultation.
- If 10 or fewer juvenile and adult queen conch are found within the survey area, respectively, all in-water work below MHWL may not begin until either of the following conditions is met:
  - i. Allow all queen conch found in the survey area to move, of their own volition, beyond the project footprint perimeter, as buffered by the number of days until the next during-construction survey. For example, if the next during-construction survey is not planned for 2 days, the conch must move  $12\text{m} \times 2 = 24\text{m}$  beyond the survey perimeter. If and when this condition is satisfied, construction may begin or resume, with ongoing during-construction surveys.
  - ii. The applicant may relocate individuals away from the routes of effect from in-water activities, following procedures outlined in **3. Queen Conch Relocation Guidelines**. If and when this condition is satisfied, construction may begin or resume, with ongoing during-construction surveys.

### **3. Relocation Guidelines**

In-water work below MHWL can only occur if no queen conch are present in the survey area. These Guidelines apply to the relocation of juvenile and adult queen conch. Adult queen conch are defined here as any queen conch with a flared lip and lip thickness  $\geq 1\text{cm}$ . Up to 10 individual juvenile and up to 10 individual adult conch<sup>5</sup>, in total, may be relocated over the duration of the entire permitted activity. The Applicant may proceed with construction activities after queen conch are relocated outside the survey area.

NOAA Fisheries SERO PRD recommends using either the temporary or permanent relocation protocol as follows:

- i. **Temporary Relocation Protocol:** can only be used for projects of short duration ( $\leq 72$  hours of in-water work) AND those that are unlikely to alter the benthic habitat (i.e., no fine grain sedimentation anticipated from construction activity, and no deposition of materials on the habitats used by queen conch in the survey).
- ii. **Permanent Relocation Protocol:** use for projects of longer duration OR projects where benthic habitat alteration is anticipated.

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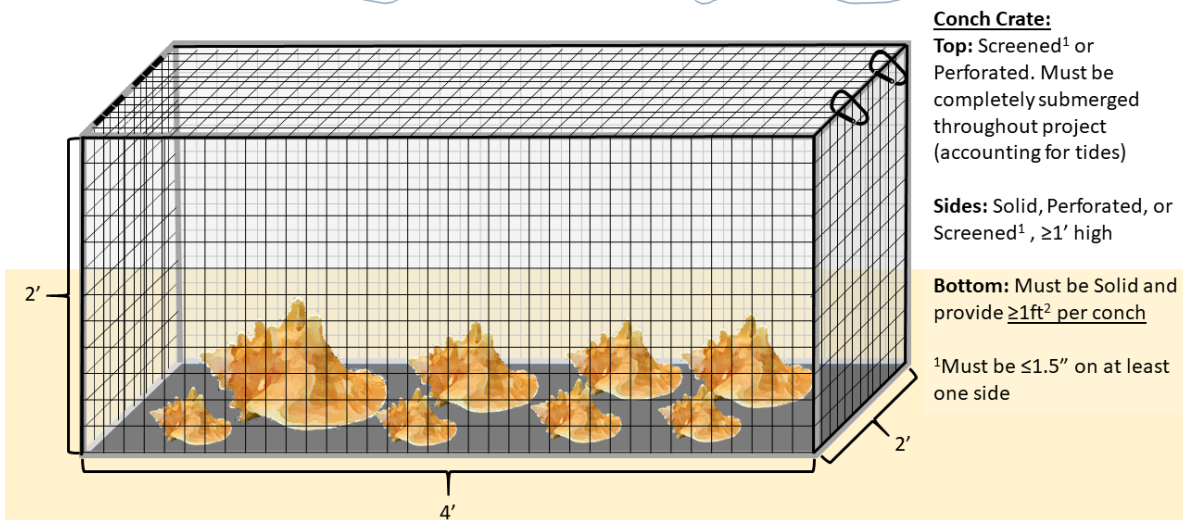
<sup>5</sup> Successful spawning densities equate to 100 adult queen conch per hectare (Horn et al. 2022) or 10 adults per 1000 square meters. Given that the maximum consultation size is 1000 square meters, the figure of 10 individuals represents the upper limit of non-spawning area densities.)

## Temporary Relocation Protocol

- i. Obtain necessary permits for temporary holding pen from USACE, FWC, DNER, and/or DPNR.
- ii. Create a holding crate that is located outside the survey area. Holding crates should have a non-permeable bottom and should allow for the flow of water throughout the crate with walls at least 1 ft tall.
- iii. Relocate queen conch (up to 10 juveniles and up to 10 adults) by hand. Queen conch should be kept underwater and out of direct sunlight during relocation (e.g., by snorkelers or divers) or placed in buckets of aerated seawater, while being transported to the holding crate. Holding and transport should be completed within 3 hours.
- iv. Place individuals into holding crate with shell opening facing down. Do not stack individuals. The holding crate must be large enough to provide  $\geq 1 \text{ ft}^2$  per conch. Use multiple crates if necessary.
- v. Individuals can remain in holding pens for up to 72 hours, with daily monitoring to ensure survival.
- vi. Upon completion of construction, individual queen conch can be moved back to their original location using the same relocation procedures outlined in step (iii).

### TEMPORARY RELOCATION: Small projects (<1000 m<sup>2</sup>) up to 72 hrs duration with no anticipated changes to sediment:

Place conch, shell opening down, into crate outside survey area until in-water work completed, then return to original locations.



Example depicted; configurations satisfying requirements may vary. Avoid overcrowding – use multiple crates if necessary.

## Permanent Relocation Protocol

1. Gather all queen conch in the survey area (up to 10 juveniles and 10 adults) by hand.
2. Carefully place queen conch in containers of aerated seawater, and keep containers out of direct sunlight during transport. Queen conch should not be stacked one on top of the other. Transport duration should not exceed 3 hours.
3. In Florida, relocate conch to areas identified by FWC during the SAL process. In other locations, relocate conch to areas identified in this relocation site guide, in a manner consistent with permit requirements from USVI-DPNR and Puerto Rico DNER.
4. Individuals should be carefully released at relocation sites by hand-placing them on the bottom, or by slowly lowering them to the bottom using crates or sacks, so as to avoid any potential damage to their shells. Care must be taken to ensure that no air is trapped inside the shell. If possible, individuals should be placed in sand or seagrass rather than directly atop coral or other hardbottom.
5. Once placed on the bottom, snorkelers or divers should ensure that each individual is placed right side up with shell opening facing downward so as to reduce potential risk from predators.

Applicants must also ensure that they are complying with applicable state and territorial requirements before relocating queen conch. Relocation of queen conch in Florida may require a [Special Activities License](#) (SAL) from the Florida Fish and Wildlife Conservation Commission (FWC). Similarly, relocation of queen conch in USVI may require the applicant to obtain a permit from [USVI Department of Planning and Natural Resources \(DPNR\)](#). In Puerto Rico, relocation may require special permits from [Puerto Rico Department of Natural and Environmental Resources](#) (DNER).

#### 4. Reporting Guidelines:

In addition to any reporting requirements associated with federal, state, or territorial permits, please report incidental take using the [Endangered Species Take Report Form](#). Please include project name, consultation number, survey coordinates, survey area, date, surveyor identification, number of queen conch encountered, and number taken. If conch are relocated, please also include number of queen conch relocated, relocation method, and any injury or mortality observed.



Appendix 1. Guidelines Flowchart

## Queen Conch Survey, Construction Conditions, Relocation and Reporting Guidelines

