



*Review of the North Carolina Wildlife  
Federation's Petition for Rulemaking*

February 16, 2017

*DEPARTMENT OF ENVIRONMENTAL QUALITY*

Marine Fisheries





## **Review of the petition**

- Assembled a technical review document
- Identified general considerations for each component

## **General comments**

Reviewed the information provided by petitioner:

- Nov. 2, 2016 Federation Petition
- Jan. 12, 2017 Modifications to the Petition
- Jan. 26, 2017 Response to Public and Division Comments



## **Timeline and Process:**

- Fishery Management Plan Advisory Committee had 10 meetings during 2013-2014
  - Considered 29 different management options
- Draft plan reviewed at Southern, Northern, Habitat and Water Quality and Shellfish/Crustacean advisory committees in 2013
- High level of public comment throughout process
- Marine Fisheries Commission selected preferred management options February 2014 and initiated rulemaking in May 2014
- Final rules and final adoption of plan occurred February 2015



### **Issues and management options evaluated and addressed in 2015 Shrimp Fishery Management Plan:**

- Alternative and modified fishing gears
- Effort management - net numbers, vessel lengths, head rope lengths, adding one day to the weekend closure, closing shrimp trawling at night
- Area restrictions, management of New River trawling
- Bait shrimping



### **Relevant measures approved by the commission in 2015:**

- Require two bycatch reduction devices (implement by proclamation)
- Collaborate with industry on a shrimp trawl gear study with a 40-percent bycatch reduction target
- Support federal requirements for turtle excluder devices in skimmer trawls
- Consider changing designation of Special Secondary Nursery Areas not opened since 1991 to permanent Secondary Nursery Areas

## *Organization of DMF's Review of Petition*

1. Proposal to designate all coastal fishing waters (not otherwise designated as nursery areas) as a special secondary nursery area
2. Proposal to establish criteria for opening the shrimping season
3. Proposal to define the types of gear and how/when gear may be used (in the proposed special secondary nursery area during shrimping season)
4. Proposal to establish new size limits for Atlantic croaker and spot

# 1. Designation of Special Secondary Nursery Areas

**Proposed:** Designate all coastal fishing waters not otherwise designated as nursery areas as a Special Secondary Nursery Area

There are different ecological functions across areas and habitats within the estuaries – not all habitats have equal function or management goals

## **Background**

General Definition of a Nursery Area (15A NCAC 03I .0101(4)(f))

Areas that for reasons such as food, cover, bottom type, salinity, temperature, and other factors, young finfish and crustaceans spend the major portion of their initial growing season.

Primary Nursery Areas were established by rule in the 1970s, based on field surveys and analysis of juvenile fish abundance and other environmental factors (e.g. temperature, salinity, bottom type).

Division protocol for new designations requires a minimum of three continuous years of sampling an area in order to fully evaluate habitat function.

# 1. Designation of Special Secondary Nursery Areas

## **Background**

Primary Nursery Areas: those areas in the estuarine system where initial post-larval development takes place. These are areas where populations are uniformly early juveniles.

- Established based on juvenile sampling.
- Represent approximately 4 percent of North Carolina estuaries
- Unlawful to use trawls, long haul seines, swipe nets and dredges (03N .0104)
- Avoid significant impacts to Primary Nursery Areas (07H .0208)
  - No new dredging, marinas restricted
  - Docking facilities and floating platforms restricted based on water depths
  - No replacement of bridges with culverts
- Classified as High Quality Water (02B .0101)



# 1. Designation of Special Secondary Nursery Areas

## **Background**

Secondary Nursery Areas are areas in the estuarine system where later juvenile development takes place. Populations are composed of developing sub-adults of similar size that have migrated from an upstream primary nursery area and are generally located in the middle portion of the estuarine system.

- Represent approximately 2.4 percent of North Carolina's estuaries
- Trawling is prohibited
- Division has no juvenile sampling program for ocean waters

Special Secondary Nursery Areas are areas designated to allow shrimping to occur once substantial migration of juvenile and sub-adult fish has occurred, allowing for shrimp harvest otherwise lost to migration.

- Represent approximately 1.9 percent of North Carolina's estuaries
- Trawling is prohibited from May 15 - Aug.15



# *1. Designation of Special Secondary Nursery Areas*



## **Background**

Expand habitat protections concept

- Noble and Monroe (1991)
  - Other species groupings
  - Spatial-temporal distributions/habitat
    - Anadromous spawning and nursery areas
    - Estuarine areas important to reef fish
    - Mapping shellfish and seagrass
- Critical habitat definitions put into rule in 1994

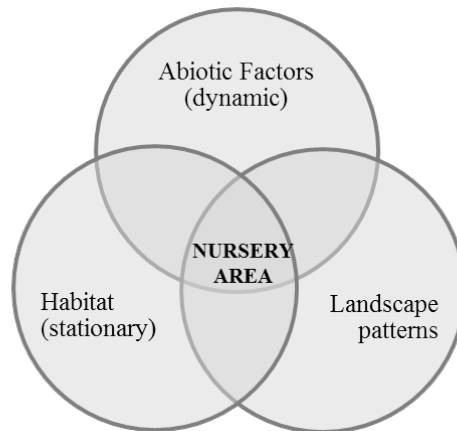


# 1. Designation of Special Secondary Nursery Areas

## Background

### Scientific Concept of a Nursery Area:

A subset of juvenile habitat that contributes disproportionately more to the production of juveniles that recruit into a population (Beck et al. 2001; Peterson 2003; Dahlgren et al. 2006).



Nursery Area Concept



# *1. Designation of Special Secondary Nursery Areas*

## **Considerations**

Of the 2.2 million acres of estuarine waters, approximately 900,000 (45 percent) are closed to shrimp trawling, including:

- Primary Nursery Areas
- Secondary Nursery Areas
- Other areas prohibited to shrimp trawling by rule:
  - Albemarle Sound
  - Submerged Aquatic Vegetation designated area
  - Upper Neuse River
  - Upper Pamlico River
  - Pungo River

# 1. Designation of Special Secondary Nursery Areas



## Considerations

- Strategic Habitat Areas: a subset of habitats that are a priority for protection due to their exceptional condition or imminent threat to their ecological functions that support estuarine and coastal fish and shellfish species.
- Site selection software: ecological importance, rarity, vulnerability
- Pamlico Sound Strategic Habitat Area
  - Sounds and Rivers Group (Spot, Atlantic Croaker, Southern Flounder, Weakfish)
  - Pamlico Sound Group (Fringed Flounder, Southern Kingfish, Striped Anchovy, Lizardfish, Brown Shrimp)
- Majority of Strategic Habitat Areas in the Pamlico Sound are located around the edges where habitat is diverse and juvenile fish concentrate

# 1. Designation of Special Secondary Nursery Areas



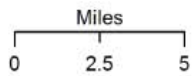
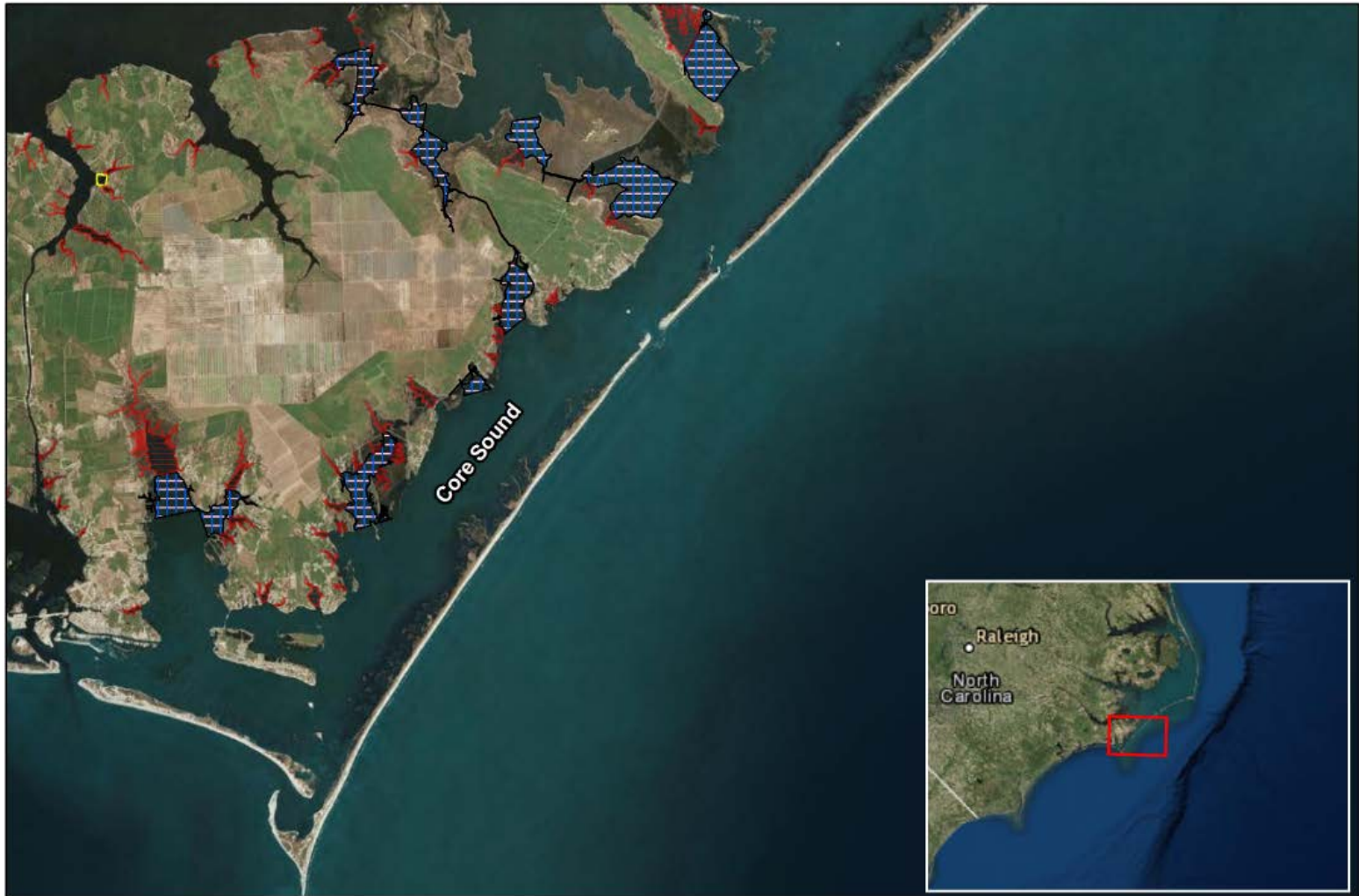
## **Considerations**

### **Clarification on management of proposed Special Secondary Nursery Areas as opposed to existing Special Secondary Nursery Areas**




- Changes to 15A NCAC 3N .0105 would provide an exception for existing special secondary nursery areas, with less restrictive harvest practices.

<b>(b) Existing SSNAs (closed May-Aug)</b>	<b>(c) Proposed SSNA</b>
1.3% of Coastal Waters	88% of Coastal Waters
Daytime and night trawling	Daytime trawling only
Five days a week	Three/Four days a week
Unlimited tow times	45-minute tow times

- Potential displacement of fishing effort from the proposed area to existing areas



## Core Sound Nursery Areas

-  Primary Nursery Areas
-  Permanent Secondary Nursery Areas
-  Special Secondary Nursery Areas



# 1. Designation of Special Secondary Nursery Areas



## Considerations

Other fisheries would be impacted and/or be eliminated by new Special Secondary Nursery Area designations:

- Crab trawling/peeler trawling
- Clam kicking/trawling
- Finfish trawling in the ocean
  - Flynet
  - Flounder
  - Striped bass
- Permitted live bait harvest





## 2. Proposal to change opening of shrimp season

**Proposed:** Restrict the Marine Fisheries Director in use of proclamation authority from opening the shrimp season until the shrimp count reaches 60 shrimp per pound (heads on) in the Pamlico Sound.

### **Background**

The current 2015 Shrimp Fishery Management Plan defines size-count-per-area criteria used as guidance for opening specific areas. The criteria take into account environmental and biological factors, including bycatch.

### **Considerations**

May or may not reduce trawling effort and bycatch because of environmental conditions that influence size and migration

## *2. Proposal to change opening of shrimp season*



### **Considerations**

Petition is unclear on how to manage the proposed Special Secondary Nursery Area, including:

- Will likely require significant new division sampling efforts and protocol in Pamlico Sound
- Pamlico Sound would serve as a proxy for determining coast-wide season opening
- The opening, as proposed, does not take into account the seasonal and geographic component of the three species of shrimp

### 3. Proposal for new gear restrictions in Special Secondary Nursery Areas

**Proposed:** Set maximum headrope length at 90 feet for estuarine waters and 110 feet in the ocean from 0 to 3 miles.

#### **Background**

- 90-foot headrope length is already in place for all waters, except Pamlico Sound and the ocean
- 2015 Shrimp Fishery Management Plan addressed and established a maximum headrope length of 220 feet to cap fleet capacity in Pamlico Sound area (not necessarily related to bycatch reduction)

### 3. Proposal for new gear restrictions in Special Secondary Nursery Areas



## Considerations

### Average Headrope Lengths (2010 and 2011)

Waterbody	2010	2011
Pamlico Sound	128 feet	117 feet
Rivers (Lower Pamlico, Lower Neuse)	55 feet	52 feet
Carteret County	47 feet	46 feet
South of Carteret County	38 feet	39 feet
Ocean	120 feet	120 feet

### 3. Proposal for new gear restrictions in Special Secondary Nursery Areas

**Proposed:** Adopt rule requiring two bycatch reduction devices in shrimp trawls correctly installed and operational.

#### **Background**

Required by the 2015 Shrimp Fishery Management Plan through proclamation (SH-2-2015), which provides descriptions of authorized bycatch reduction devices that may be used in North Carolina coastal fishing waters

#### **Considerations**

Ongoing, three-year bycatch reduction gear study with a 40-percent bycatch reduction goal, as specified in the 2015 Shrimp Fishery Management Plan

- Initial results are promising, with preliminary bycatch reductions results as high as 50 percent.
- Study will be completed at the end of 2017 and results will be evaluated and presented to the commission.



### 3. Proposal for new gear restrictions in Special Secondary Nursery Areas

**Proposed:** Restrict shrimp and crab trawling to three days a week in internal coastal waters and four days a week in the ocean.

#### **Background**

Currently, shrimp trawling is prohibited on weekends. (9 p.m. Friday to 5 p.m. Sunday).

#### **Considerations**

- Best catches of shrimp occur after the weekend closure
- Recoupment (delay in catch) may occur.
  - May yield higher shrimp catch on the first open day of the week
  - Unclear impact on bycatch as effort may increase on opened days (number of vessels and tows per day)
- Does not take into account days lost by weather, tide, moon phases
- Petition does not recommend which days to close.



### 3. Proposal for new gear restrictions in Special Secondary Nursery Areas



**Proposed:** Prohibit nighttime shrimp and crab trawling.

#### **Background**

Some areas of North Carolina are already restricted to daytime trawling

#### **Considerations**

- Daytime and nighttime trawling determined by life histories of shrimp species
  - Brown and pink shrimp more active at night
  - White shrimp more active during the day
  - Data are limited on nighttime trawling
- Enforcing nighttime closures would likely increase the need for additional nighttime patrol by Marine Patrol officers.



### 3. Proposal for new gear restrictions in Special Secondary Nursery Areas

**Proposed:** Limit shrimp and crab trawling to a maximum of 45-minute tows.

#### **Background**

Restricting tow times was considered as a management option in the 2015 Shrimp Fishery Management Plan

#### **Considerations**

- May reduce bycatch mortality
- Recoupment of shrimp and bycatch may occur due to additional tow times
- Enforcement of a tow time is difficult without significant Marine Patrol oversight or costly monitoring systems





### 3. Proposal for new gear restrictions in Special Secondary Nursery Areas



#### **Background**

- Combining the proposed management strategies has the potential to significantly reduce shrimping effort
  - Commercial shrimp fishery is the second largest and second most valuable fishery in North Carolina
  - Shrimp trawls are popular with Recreational Commercial Gear License holders

Year	Pounds	Commercial Ex-Vessel Value
2011	5,140,360	\$10,885,795
2012	6,141,489	\$13,333,193
2013	4,859,840	\$12,947,059
2014	4,691,073	\$12,405,269
2015	9,097,684	\$16,835,349

### *3. Proposal for new gear restrictions in Special Secondary Nursery Areas*

#### **Considerations**

The magnitude of impacts to fishing effort is difficult to estimate:

- Shrimping season as proposed limits fishing to approximately 58 percent of the year
- Three trawling days in the estuarine waters limits fishing to approximately 45 percent of the year
- Four trawling days in the ocean limits fishing to approximately 57 percent of the year
- Daytime-only fishing with 45-minute tows further limits fishing
- Restricting total headrope length from 220 to 90 feet in the estuarine waters reduces the maximum allowable headrope by 59 percent

## 4. Changing Size Limits for Spot and Croaker

**Proposed:** Establish size limit for spot at 8-inch total length

### **Background: Spot**

- Managed by the Atlantic States Marine Fisheries Commission's Fishery Management Plan and the N.C. Fishery Management Plan for Interjurisdictional Fisheries.
- Stock Status - *Concern*
  - No coast-wide stock assessment
  - Unable to determine if overfishing is occurring or if overfished
  - Declining trends in harvest and abundance
  - Management triggers not met
- Short-lived
  - Mature at age 2
  - Average size at maturity: 7.9 inches total length for males and 8.4 inches total length for females



## 4. Changing Size Limits for Spot and Croaker

**Proposed:** Establish size limit for Atlantic Croaker at 10-inch total length

### **Background: Atlantic Croaker**

- Managed by the Atlantic States Marine Fisheries Commission's Fishery Management Plan and by the N.C. Fishery Management Plan for Interjurisdictional Fisheries
- Stock Status - *Concern*
  - Not experiencing overfishing, unable to determine if overfished
  - Biomass increasing
  - Age structure expanding
  - Fishing mortality decreasing
  - Recruitment variable but generally increasing
  - Management triggers not met; no action needed.
  - Inadequate data on magnitude of discards in South Atlantic shrimp trawl fishery
- Short-lived
  - Mature at age 2
  - Average size at maturity: 7.25 inches total length for males and 7.5 inches total length for females



## 4. Changing Size Limits for Spot and Croaker

### Considerations

- Spot and Atlantic croaker are managed as coastwide stocks by the Atlantic States Marine Fisheries Commission.
- Atlantic States Marine Fisheries Commission and South Atlantic and Mid-Atlantic Fishery Management Council Fishery Management Plans adopted through the N.C. Fishery Management Plan for Interjurisdictional Fisheries:
  - Provide for proclamation authority to comply with mandated measures from Atlantic States Marine Fisheries Commission/Council plans
  - Allow for Marine Fisheries Commission to take action(s), if needed, to comply with other plans.
- The state fishery management plan development process is used to create state-specific plans, like spotted seatrout, when additional measures beyond those required by the Atlantic States Marine Fisheries Commission/Council plans are deemed appropriate.
- Regulatory discards are addressed in the Jan. 12 modification.



# *Rulemaking Process /Administrative Procedure Act*

Need for rule change identified and substantial economic impact evaluated



DMF reviews/proposes text for rule(s) and conducts fiscal analyses for OSBM approval



MFC approves fiscal analyses/notice of text



Proposed rule published in N.C. Register



Public hearings held



MFC approves permanent rule



Rule reviewed by Rules Review Commission



Rule becomes effective



**The proposed rules could likely have a financial impact on all persons affected of at least \$1 million in a 12-month period, including costs and benefits.**

- Anticipated economic impacts:
  - Gear purchase/modification
  - Vessel reconfiguration
  - Decrease in gear efficiency
  - Elimination of clam trawling and finfish trawling in the ocean
  - Increase in biological productivity (more fish)
  - Increase in exploitable biomass (bigger shrimp and fish)
- If it is determined there is a substantial economic impact, the commission must consider at least two alternatives to the proposed rules.

# *Fishery Management Plan Process*







### **Fishery Management Plan Management Measures Interactions:**

- 2015 Shrimp Fishery Management Plan
- 2015 Interjurisdictional Fishery Management Plan
  - Atlantic croaker
  - Spot
  - Summer flounder
  - Atlantic striped bass
- 2013 Blue Crab Fishery Management Plan
- 2016 Hard Clam Fishery Management Plan



### **Examples of Intersection with Rules and Proclamations:**

#### **2015 Shrimp Fishery Management Plan**

- Petition proposed changes to 3R .0105, 3L .0101, 3L .0103, 3N .0105, 3I .0101
- Changes would be required for additional rules, for example: 03J .104, 03J .0202, 03L .0102, 03O .0503

#### **2016 Hard Clam Fishery Management Plan**

- Further modifications to 03I .0101

#### **2013 Blue Crab Fishery Management Plan**

- Changes would be required to 03J .0104

#### **2015 Interjurisdictional Fishery Management Plan**

- Changes would be required for additional rules, for example: 03J .0202, 03M .0205, 03M .0503
- Proclamation required for Striped Bass Atlantic Ocean trawl fishery





### **1997 Fisheries Reform Act**

If proposed rules contained in the petition are adopted, consideration must be given to how to implement new rules that would be in conflict with existing fishery management plans, associated rules and proclamations.



# Questions ?

