



Collaborative Shrimp Trawl Gear Study

DEPARTMENT OF ENVIRONMENTAL QUALITY

Marine Fisheries

Marine Fisheries Commission | Kevin Brown | November 17, 2016



Background

Shrimp Fishery Management Plan

- 2012: revision recommended
- 2013: Advisory Committee
- 2014: Preferred Management Options
- 2015: Amendment 1 Management Strategies



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Marine Fisheries Commission Management Strategy



- Convene a stakeholder group
- Initiate Industry testing
- 40-percent reduction
- Ocean and internal waters
- Three years
- Control net:
 - Florida Fisheye
 - Federally approved turtle excluder device
 - 1 ½-inch stretch mesh tailbag

Bycatch Reduction Goal

- Naked net: 100 pounds bycatch
- Federal certification: 30-percent reduction (30 pounds) leaves 70 pounds bycatch
- 40-percent reduction goal over net with turtle excluder device and bycatch reduction device
40 percent of remaining 70 pounds (28 pounds)
leaves 42 pounds bycatch
- **Net reduction of 58 percent over naked net**

Funding

- Conservation Fund
- Saltonstall-Kennedy Grant Program
- Bycatch Reduction Engineering Program
- National Fish and Wildlife Foundation
- Atlantic Coastal Fisheries Cooperative Management Act



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Cooperative Effort

- Industry
 - Vessels
 - Nets
 - Culling table
 - Replacement gear
- Crew
 - Gear installation
 - Switching gears



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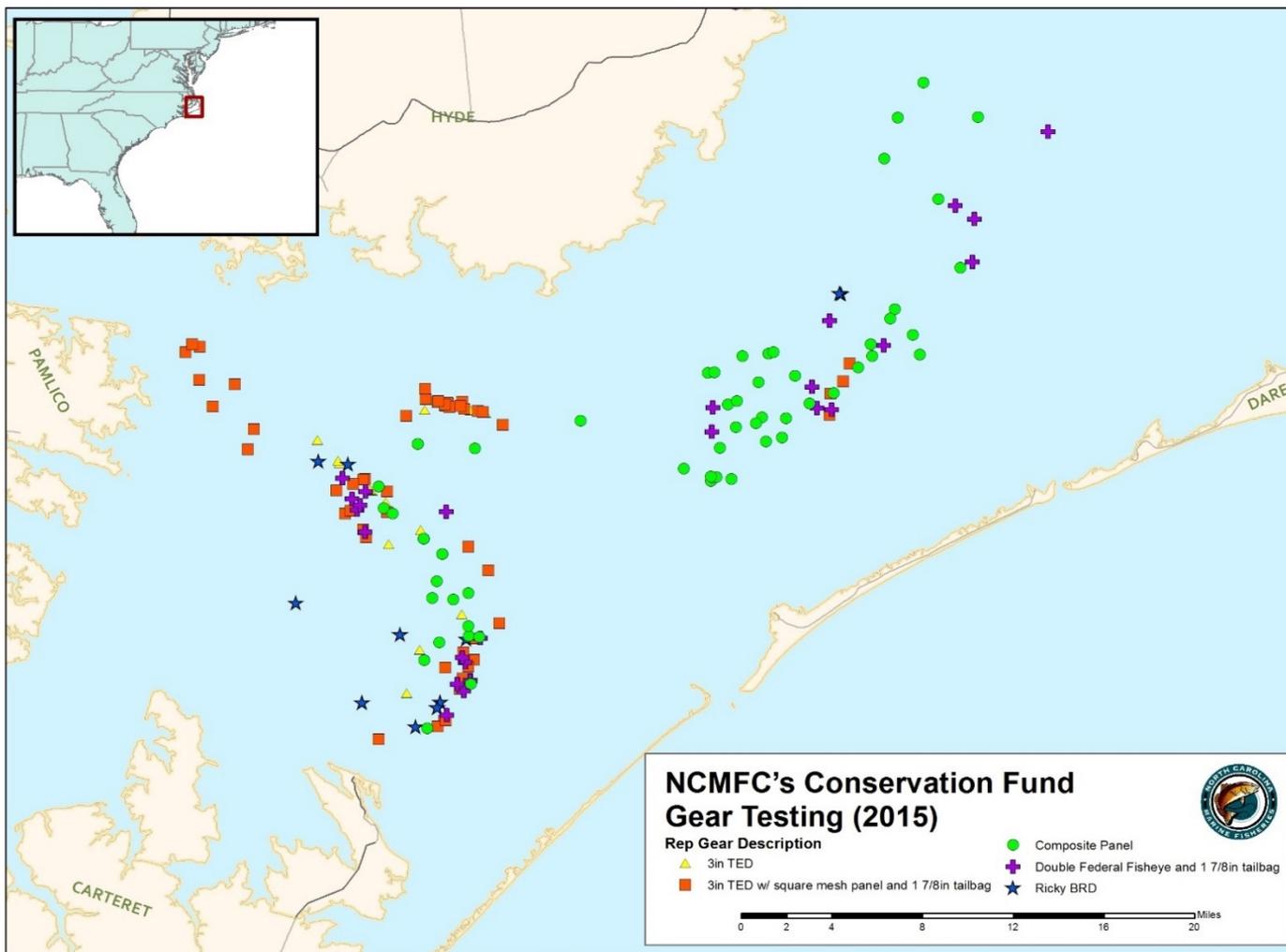


Workgroup meetings

- March 2015
- January 2016
- Early 2017



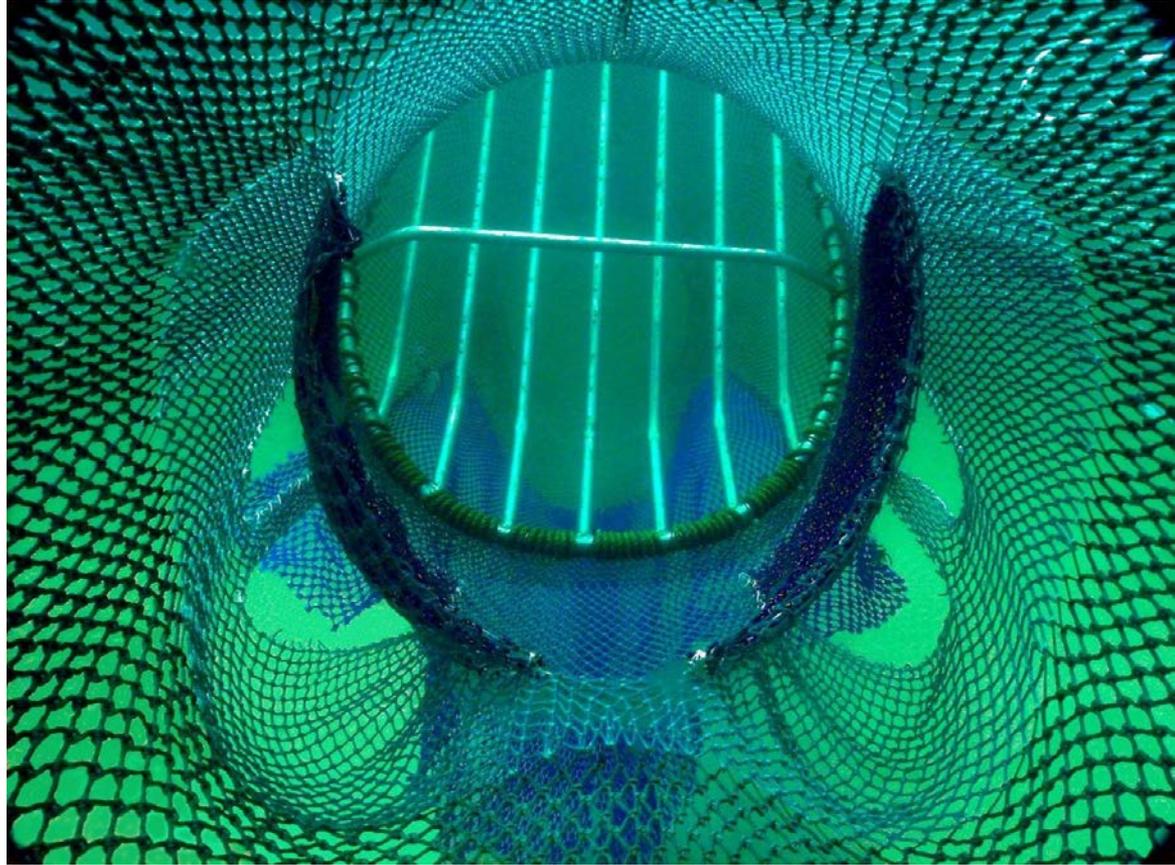
Methodology



- Three Vessels
- Two observers
- Calibration
- Keep catch separate
- Whole haul sample
- Switch gears
- Video

Composite Panel with Fish Spooker Cone

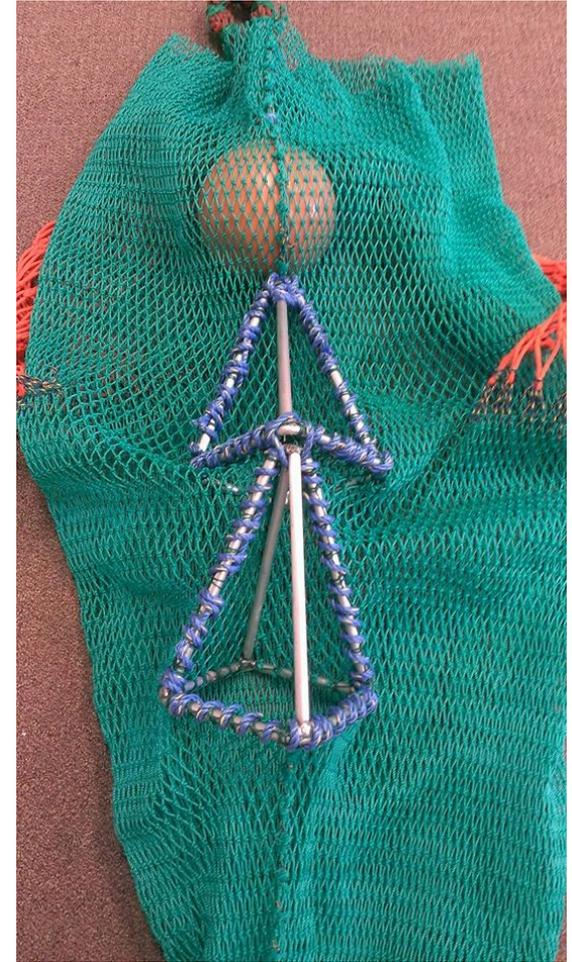
- 44 tows used for analyses
- 1 ½-percent average shrimp loss
- 27-percent average finfish reduction



Species Group	N	Control Net		Experimental Net		Lower 95 percent Confidence Interval	Percent Difference	Upper 95 percent Confidence Interval	p value
		Mean (kg)	Standard Deviation (kg)	Mean (kg)	Standard Deviation (kg)				
Shrimp	44	72.15	45.12	71.16	43.00	- 2.86	1.37	5.60	0.1938
Finfish	44	180.45	65.88	132.45	56.48	19.91	26.60	33.28	0.0000

Ricky bycatch reduction device

- 15 tows used for analyses
- 26-percent average shrimp gain
- Five-percent average finfish reduction



Species Group	N	Control Net		Experimental Net		Lower 95 percent Confidence	Percent Difference	Upper 95 percent Confidence	p value
		Mean (kg)	Standard Deviation (kg)	Mean (kg)	Standard Deviation (kg)				
Shrimp	15	56.49	31.62	71.40	64.95	-105.37	- 26.39	52.58	0.1948
Finfish	15	160.43	84.91	153.16	71.51	- 9.97	4.53	19.03	0.2552

Two federal fisheyes, 1 7/8-inch tailbag

- 26 tows used for analyses
- Two-percent average shrimp gain
- 38-percent average finfish reduction



Species Group	N	Control Net		Experimental Net		Lower 95 percent Confidence	Percent Difference	Upper 95 percent Confidence	p value
		Mean (kg)	Standard Deviation (kg)	Mean (kg)	Standard Deviation (kg)				
Shrimp	26	94.36	46.70	95.81	46.50	- 9.00	- 1.54	5.93	0.3366
Finfish	26	134.96	67.33	83.23	47.21	25.16	38.33	51.49	0.0000

Three inch turtle excluder device, one state fisheye

- 19 tows used for analyses
- 12-percent average shrimp loss
- 20-percent average finfish reduction



Species Group	N	Control Net		Experimental Net		Lower 95 percent Confidence	Percent Difference	Lower 95 percent Confidence	p value
		Mean (kg)	Standard Deviation (kg)	Mean (kg)	Standard Deviation (kg)				
Shrimp	19	50.42	28.36	44.35	20.71	- 2.88	12.03	26.95	0.0451
Finfish	19	109.34	47.83	87.17	41.71	7.23	20.27	33.32	0.0021

Three inch turtle excluder device, one federal fisheye, skylight panel, 1 7/8-inch tailbag



- 40 tows used for analyses
- Three-percent average shrimp loss
- 27-percent average finfish reduction

Species Group	N	Control Net		Experimental Net		Lower 95 percent Confidence	Percent Difference	Lower 95 percent Confidence	p value
		Mean (kg)	Standard Deviation (kg)	Mean (kg)	Standard Deviation (kg)				
Shrimp	40	77.10	36.14	75.05	36.21	- 1.25	2.65	6.56	0.0904
Finfish	40	121.01	76.35	88.16	50.80	15.66	27.15	38.64	0.0000

2016 Preliminary Results

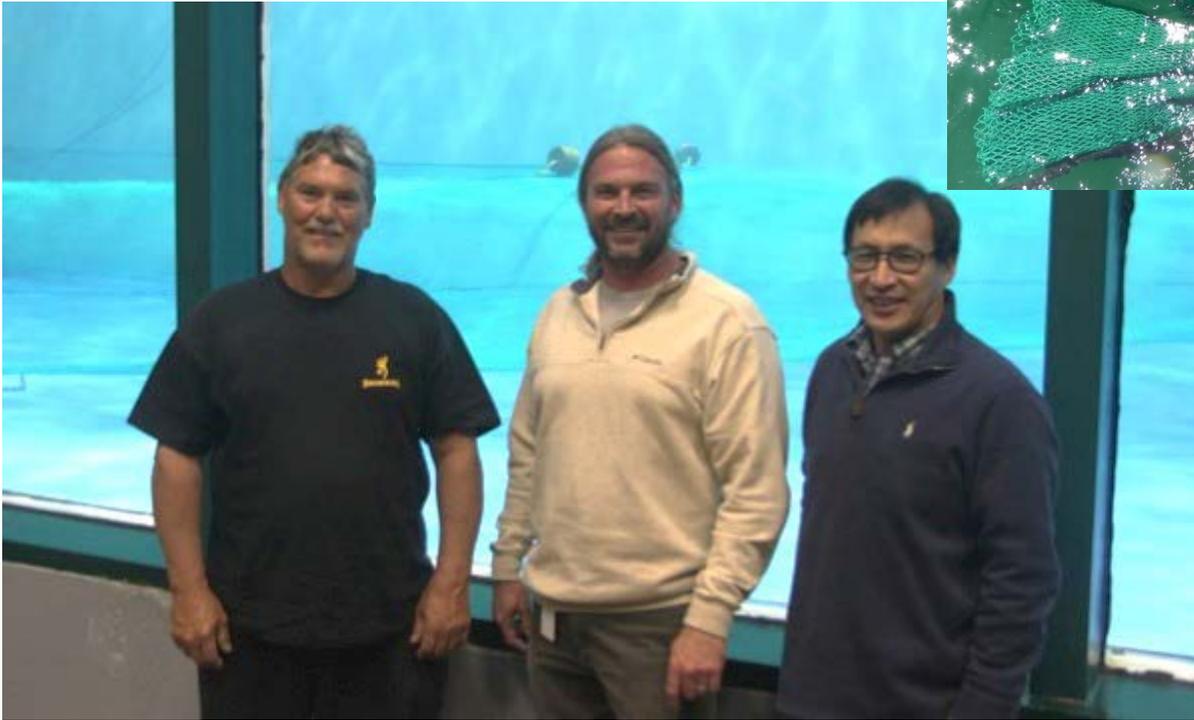


- Virgil Potter
- Three-inch turtle excluder device, two federal fisheyes, 1 $\frac{3}{4}$ -inch tailbag
- Four-inch turtle excluder device, two federal fisheyes, 1 $\frac{3}{4}$ -inch tailbag



Other Efforts

- National Oceanographic and Atmospheric Administration turtle excluder device and bycatch reduction device testing
- Topless trawl
Flume tank



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A photograph of the ocean seen through a white window frame. The sky is filled with soft, colorful clouds in shades of blue, orange, and yellow, suggesting a sunset or sunrise. The water is dark blue with white-capped waves. The window frame consists of two vertical bars and several horizontal bars.

Questions

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