

# **A Turtle Excluder Dredge for the Sea Scallop Fishery**

## **Performance Report Two**

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By

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## **Progress Summary**

We had proposed to do the formal tests during Hudson Canyon collection trips during the summer of 2006 pending approval of Framework 18. Based on reports from vessels we requested that the project completion date change from September 30, 2006 to September 30, 2007. The project depends on 71,000 lbs of RSA scallops from the Hudson Canyon Area. The scallop abundance projections for this area by NMFS were inaccurate and as a result the NEFMC and NMFS extended the harvest period two years under Framework 18 to the scallop FMP to include 2006-7 fishing years. Our commercial scallop partners attempted a trip into this area this year but there were not enough harvestable-sized scallops to support a research trip. There are many smaller scallops which should reach harvest size by next year. Also, there have been no turtle takes reported on observed and unobserved trips. For these reasons we believe it is best to hold off the research until next summer's turtle season. The extension has been approved. In the meantime, we continue to test the new dredge through other funding mechanisms and voluntary work by industry.

## **Panama City Tests**

Coonamessett Farm continues to make progress on the goals of this RSA project by working with the NEFSC, VIMS and the SEFSC to mitigate the bycatch of sea turtles in the scallop dredge fishery. Coonamessett Farm's "turtle chain mat" has the effect of preventing turtles from entering the bag. This was demonstrated by a series of fifteen experimental cruises with 3,248 paired hauls were carried out during the summer and early fall of 2003 on the continental shelf waters of the Mid-Atlantic Bight. The dredges without the chain mats caught eight turtles while the dredges outfitted with chain mats did not catch any sea turtles (DuPaul, Rudders, and Smolowitz, 2004).

As a follow-up to the chain mat gear modification, this RSA project was designed to investigate gear modifications that could reduce benthic injuries if benthic gear-turtle interactions occur in this fishery. When chain mats are in place, turtles may still be encountering the dredges but are not being observed because they are excluded from the bag and a portion of these turtles may sustain fatal injuries. The turtle excluder dredge was conceived by Coonamessett Farm and designed to act as a wedge and eject turtles over the top of the dredge. With the assistance of our partners, a preliminary design was tested in 2005. This work achieved some success and resulted in the development of a dredge with some additional modifications that was tested off Panama City in 2006.

We constructed a 15-foot version of the turtle excluder dredge that was tested on the F/V Celtic on the May 19<sup>th</sup> trip which worked well (Progress report One). The modifications were made to the 13-foot version of the dredge tested in Panama City in 2005. This dredge was modified at Barnegate Light and shipped to Panama City.

In collaboration with NMFS we evaluated this modified dredge's ability to lessen the likelihood of turtles going under a dredge frame. It is believed that by keeping the turtles out from under the dredge, the likelihood of injuries is minimized. Although we are uncertain what percentage of

turtles encounter the dredge while the dredge is on the substrate, this work helped us determine if this dredge design needs to be modified before it is tested in the commercial fishery. The testing examined, in a controlled situation, the ability of this dredge to eject dead turtles over the dredge frame as opposed to going under the cutting bar where it is assumed injuries would be greatest. The dredge performed well. No dead turtle placed in front of the dredge went under the cutting bar. Turtles placed to go under the bale bars were sometimes held down by the bars but did not get forced under the dredge.

## Westport Trip

In conjunction with another RSA project we tested the 15-foot version of the turtle excluder dredge on the F/V Westport. The data is presented below.

### Catch Data for Westport- sailed:

7/31/2006

Closed Area II

Port

*Observed successful tows*

**Tow #**

### Experimental Turtle Dredge

	Scallops (bu)	Skates (#)	Monk (#)	Flats (#)	Barndoor Skates (#)
<b>1</b>	38	14	33	23	2
<b>2</b>	11.5	12	24	12	7
<b>3</b>	47	3	12	1	0
<b>7</b>	40	8	14	7	2
<b>8</b>	20	6	24	3	1
<b>9</b>	23	3	12	1	0
<b>13</b>	32	5	18	2	0
<b>18</b>	47	4	35	4	0
<b>19</b>	36	9	16	4	0
<b>20</b>	44	9	24	2	1
<b>24</b>	40	4	19	7	0
<b>27</b>	37	4	24	3	1
<b>31</b>	40	3	22	9	0
<b>36</b>	42	4	22	2	0
<b>Totals</b>	<b>497.5</b>	<b>88</b>	<b>299</b>	<b>80</b>	<b>14</b>
Median	39	4.5	22	3.5	0
Average	36	6	21	6	1
Avg. Bycatch per bushel of scallops		0	0	0	0

### Turtle Dredge vs. New Bedford Dredge

Percent retention scallops	97%
Percent retention skates	63%
Percent retention monkfish	86%
Percent retention flounders	49%

Percent retention barndoor 88%  
 Count of good tows of all good  
 observed: 14 45% tows

**Catch Data for Westport- sailed: 7/31/2006** Starboard  
*Observed successful tows*

Tow #	Control Standard New Bedford Dredge				Barndoor
	Scallops (bu)	Skates (#)	Monk (#)	Flats (#)	Skates (#)
<b>1</b>	33	15	30	23	2
<b>2</b>	14	9	13	20	7
<b>3</b>	48	2	9	1	0
<b>7</b>	18	9	12	6	0
<b>8</b>	35	15	45	5	0
<b>9</b>	25	13	20	5	0
<b>13</b>	46	15	13	12	0
<b>18</b>	36	5	35	11	3
<b>19</b>	34	9	36	4	3
<b>20</b>	48	3	21	6	1
<b>24</b>	47	6	28	6	0
<b>27</b>	42	18	42	35	0
<b>31</b>	47	17	23	18	0
<b>36</b>	40	4	19	10	0
<b>Totals</b>	<b>513</b>	<b>140</b>	<b>346</b>	<b>162</b>	<b>16</b>
Median	38	9	22	8	0
Average	37	10	25	12	1
Avg. Bycatch per bushel of scallops		0	0	0	0

The results continue to show the turtle excluder dredge design also reduces the bycatch of fish species. Work is continuing under a 2006 RSA project to design an improved dredge frame based on the turtle excluder dredge concepts. We expect that the results of that design effort will be incorporated into the 2007 field testing.

2005 (top) and 2006 (bottom) Modified Dredge

